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# BRONCHOGENIC CARCINOMA

## ITS FREQUENCY, DIAGNOSIS, AND EARLY TREATMENT

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The incidence of bronchogenic carcinoma is increasing more rapidly than that of any other cancer. In 1912 Adler,[1] who was able to collect only 374 cases of cancer of the lung, stated, "On one point, however, there is complete consensus of opinion and that is that primary malignant neoplasms of the lung are among the rarest form of disease." Whereas it was an infrequent lesion 40 years ago, it has become one of the most frequent malignant lesions encountered in men. In the 10 years from 1938 to 1948 the number of fatalities from bronchogenic carcinoma in the United States increased 144%, from 6,732 in 1938 to 16,450 in 1948. In this same period of time the total cancer deaths from all types of cancer, increased 31%, from 149,214 in 1938 to 195,594 in 1948. From 1920 to 1948 the death rate from bronchogenic carcinoma per 100,000 population in the United States increased over 10 times, from 1.1 to 11.3 (Fig. 1). According to Doll and Hill,[2] deaths from cancer of the lung in England increased fifteenfold from 1922 to 1947. There has been considerable controversy concerning the cause of the unprecedented increase in bronchogenic carcinoma. According to Wynder and Graham,[3] excessive and prolonged cigarette smoking is an important factor in the genesis of bronchogenic carcinoma. They found that of their 605 male patients with bronchogenic carcinoma, only 2.6% did not smoke or smoked minimally; whereas over 96% had smoked heavily for over 20 years. In the control male general population these figures were 14.6% and 73.7%, respectively. Levin, Goldstein, and Gerhardt [4] also found that there were more smokers among cancer patients than noncancer patients and that patients with bronchogenic cancer usually smoked cigarettes. Watson [5] found in the Memorial Hospital cases that 37% of the patients with lung cancer and 19% without cancer were heavy smokers. Doll and Hill [2] showed that in a series of patients with cancer of the lung, 11.6% smoked 500,000 cigarettes or more a year; whereas in a noncancer group only 5.6% smoked that many cigarettes. According to these investigators, "About the age of 45, the risk of developing the disease (bronchogenic carcinoma) increases in simple proportion with the amount smoked, and it is approximately 50 times as great among those who smoke 25 or more cigarettes a day as among nonsmokers." Schrek and associates [6] state: "This positive correlation between the incidence of cigarette smoking and the incidence of cancer of the respiratory tract appeared to be both statistically and biologically significant. There is strong circumstantial evidence that cigarette smoking was an etiologic factor in cancer of the respiratory tract." In Iceland, where smoking has only recently become popular, Dungal,[7] states that among 417 cancers found in 1,939 necropsies there were only 12 cases of primary carcinoma of the lung.

For some time two of us [8] have been convinced that there is a causal relationship between the increased incidence of bronchogenic carcinoma and the increased use of cigarettes. There is a distinct parallelism between the

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Read before the Section on Diseases of the Chest at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 15, 1951.

1. Adler, I.: Primary Malignant Growth of the Lung and Bronchi, New York, Longmans Green & Co., 1912.
2. Doll, R., and Hill, A. B.: Smoking and Carcinoma of the Lungs: Preliminary Report, Brit. M. J. **2**: 739, 1950.
3. Wynder, E. L., and Graham, E. A.: Tobacco Smoking as a Possible Etiologic Factor in Bronchogenic Carcinoma; Study of 684 Proved Cases, J. A. M. A. **143**: 329 (May 27) 1950.
4. Levin, M. L.; Goldstein, H., and Gerhardt, P. R.: Cancer and Tobacco Smoking; Preliminary Report, J. A. M. A. **143**: 336 (May 27) 1950.
5. Watson, W. L.: Cancer of the Lung: Consideration of Incidence and Etiology, New York Med. **6**: 15 (June 20) 1950.
6. Schrek, R.; Baker, L. A.; Ballard, G. P., and Dolgoff, S.: Tobacco Smoking as an Etiologic Factor in Disease, Cancer Res. **10**: 49, 1950.
7. Dungal, N.: Lung Carcinoma in Iceland, Lancet **2**: 245, 1950.
8. Ochsner, A., and DeBakey, M. E.: Primary Pulmonary Malignancy; Treatment by Total Pneumonectomy; Analysis of 79 Collected Cases and Presentation of 7 Personal Cases, Surg., Gynec. & Obst. **68**: 435, 1939; Carcinoma of the Lung, read at the International Cancer Congress, Sept., 1939. Ochsner, A.: The Effect of Smoking on Carcinoma of the Lung, Asociacion de Caballeros para la Lucha contra el Cancer, Buenos Aires, April, 1941.

sale of cigarettes and the incidence of bronchogenic carcinoma (Fig. 1). The annual production of cigarettes per capita population (including men, women, and children) increased from 46.3 in 1903 to 2,541 in 1948. The latter figure excludes those produced for foreign consumption. Because the carcinogenic effect of cigarette smoking does not become evident until after many years of smoking (approximately 20), it is frightening to speculate on the possible number of bronchogenic cancers that may develop as the result of the tremendous numbers of cigarettes consumed in the two decades from 1930 to 1950. From 1920 to 1930 the annual number of cigarettes per capita increased from 480 to 930 (approximately 2 times). In the decade 20 years later, i. e., from 1938 to 1948, during which time the carcinogenic effect of the smoking in the earlier decade should have become evident, the number of bronchogenic carcinomas per 100,000 population increased from 4.2 to 11.3. In the 18 years from 1930 to 1948 the annual number of cigarettes per capita consumed increased from 930 to 2,541 (2.6 times), which suggests that if there is a causal relationship between cigarette smoking and bronchogenic carcinoma the deaths per 100,000 population from this cause may be expected to increase from 11.3 to 29.4 by 1970. With the predicted death rate from bronchogenic carcinoma of 29.4 per 100,000 population in 1970, it may be estimated that the annual deaths from this cause will increase from 16,450 in 1948 to 47,000 in 1970. In 1920 deaths from bronchogenic carcinoma represented 1.1% of all cancer deaths; in 1930, 2.2%, and in 1948, 8.3%. It may be predicted that in 1970 18% of all cancer deaths will be due to bronchogenic carcinoma if present trends continue. Because of increased cigarette smoking it is likely and probable that bronchogenic carcinoma soon will become more frequent than any other cancer of the body, unless something is done to prevent its increase. In 1949 over twice as many patients with bronchogenic carcinoma as with gastric cancer were admitted to the Memorial Hospital.[9]

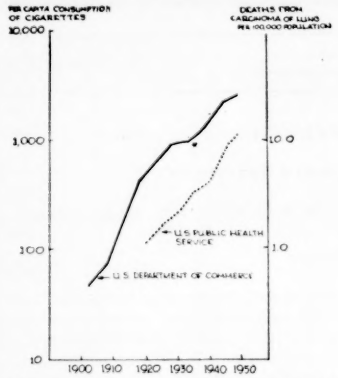


Fig. 1.—Comparison of increasing death rate from bronchogenic carcinoma with the increasing consumption of cigarettes in the United States. * = exported cigarettes deducted in 1933 and subsequently.

Unfortunately, bronchogenic carcinoma begins so insidiously and because with few exceptions it occurs in persons who smoke excessively and have a cigarette cough, relatively little attention is paid to the early manifestations of the disease. Because of this and also because of the fact that the profession generally is not cognizant of the frequency of bronchogenic carcinoma, there may be considerable delay in diagnosis. Overholt and Schmidt [10] stress the importance of the "silent phase" of bronchogenic carcinoma in which there are few or no symptoms. They report 65 cases, 19 of which were malignant and 39 benign. The resectability rate in the former was 79%. Subsequently, Overholt [11] reported 145 cases in which pulmonary shadows were detected on chest surveys, of which 51 were neoplastic and 35 malignant. He states:

> If the patient waits for symptoms and if the delays that follow in the average case are added to this time lost, approximately 90% of the lesions have by that time extended to structures outside the lung. The possibility of cure, therefore, is limited to a meager 10% in the symptomatic stage of the disease. To explore and to carry out excisional treatment during the silent phase will set treatment ahead by months or years. In our clinic when prompt treatment has followed discovery of cancer by survey, all lesions have been resectable and 75% have shown no evidence of lymphatic spread.

All patients in the group are still living. In our series of 948 cases of bronchogenic carcinoma, resection was possible in only 332 cases (35%). The average duration of symptoms in the latter group was 12.3 months. Only three patients were asymptomatic; in one the lesion (by x-ray) was 1 cm. in diameter, and in the other two it was 2.5 cm. Nine patients had symptoms less than one month. In one the lesion measured 2.5 cm.; in five, 6 to 8 cm.; and in three, 10 cm. or over. Nineteen patients had symptoms from one to two months. In four the lesion measured 2 to 3.5 cm.; in seven, 5 to 7 cm.; in four, 7.5 to 10 cm.; and in four, over 10 cm. Thus, of 332 cases in which pneumonectomy was done, symptoms for two months or less occurred in only 31. Obviously, any malignant lesion in which there is a delay of over a year has relatively little chance of cure.

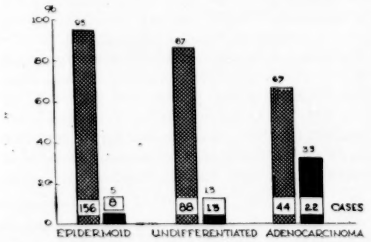


Fig. 2.—Sex incidence by histological types in 331 cases of bronchogenic carcinoma in which resection was done. Hatched bar represents males; black bar, females.

The present report is based on a series of 948 patients with bronchogenic carcinoma observed by us in New

9. Deleted in proof.
10. Overholt, R. H., and Schmidt, I. C.: Silent Phase of Cancer of Lung, J. A. M. A. **141**: 817 (Nov. 19) 1949.
11. Overholt, R. H.: Cancer Detected in Surveys, Am. Rev. Tuberc. **62**: 491, 1950.

Orleans at the Ochsner Clinic and at the Charity Hospital. Because Charity Hospital is an institution to which white and Negro patients are admitted with about equal frequency, it is possible to determine fairly accurately the racial incidence of disease. Bronchogenic carcinoma is more frequent in white men than in Negro men, the respective percentages of expected incidence being 118 and 80.

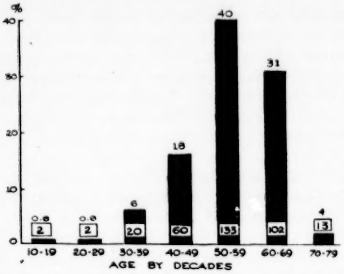


Fig. 3.—Age incidence in 332 cases in which resection was done. Figure in white bar indicates number of cases.

Bronchogenic carcinoma is primarily a disease of men, probably due to the fact that the bronchial mucosa in men is more susceptible to malignant change than in women. It has been suggested that since women are beginning to smoke as much as men the incidence in women will increase. However, it is our belief that whereas there will be some increase in the incidence of bronchogenic carcinoma in women, it will always be more prevalent in men. In the present series of patients, 840 were men and only 108 women. The type of lesion varies in the two sexes (Fig. 2). Ninety-five per cent of the patients with epidermoid carcinoma were men, while only 5% were women. On the other hand, 33% of the patients with adenocarcinoma were women, and 67% were men. Undifferentiated carcinomas occurred predominately in men (87%). Of the 288 men in whom pneumonectomy was done, 54% had epidermoid carcinoma, 31% undifferentiated carcinoma, and only 15% adenocarcinoma. Of the 43 women, only 19% had epidermoid carcinoma, 30% had undifferentiated carcinoma, and 51% had adenocarcinoma.

Bronchogenic carcinoma, as other types of carcinoma, is primarily a disease of older persons, the greatest incidence being in the fifth, sixth, and seventh decades (18%, 40%, and 31%, respectively) (Fig. 3).

## PATHOLOGY

Primary carcinoma of the bronchus can occur in any part of the bronchial tree (Fig. 4). Over half in our series occurred in the upper lobes. This is of significance, since lesions of the upper lobe bronchi are less likely to be visible on broncoscopic examination because they are located "around the corner." The two sides were involved with about equal frequency the right 53%, the left 47%. Whereas previously it was thought that primary carcinoma of the bronchus occurred frequently in the main stem bronchus, this contention is not substantiated in our series. Only 13 of the primary carcinomas in the cases in which resection was done were in the main stem bronchus, 188 were in a lobe bronchus, and 123 in the periphery. Of 331 cases in which resection was done, 49.5% of the carcinomas were epidermoid, 30.5% were undifferentiated, and 19.9% were adenocarcinomas. Epidermoid carcinomas were infrequent in women, but adenocarcinomas occurred relatively more frequently in women than in men. Of the 165 epidermoid carcinomas, 4% were in the main stem bronchus, 66% in a lobar bronchus, and 30% in the periphery. Of the 95 undifferentiated carcinomas, 3% were in the main stem bronchus, 54% in a lobar bronchus, and 43% in the periphery. Of the 64 adenocarcinomas, 5% were in the main stem bronchus, 44% in a lobar bronchus, and 51% in the periphery. It is thus seen that, although lobar bronchi are involved more frequently than any other bronchi, adenocarcinomas occur more frequently in the periphery. The relative incidence of adenocarcinoma decreases with advancing age; whereas the incidence of epidermoid carcinoma increases with advancing age. The latter is probably due to the carcinogenic effect of tobacco acting for a longer time. According to Wynder and Graham,[3] "Over 96% of patients with cancer of the lung have smoked for more than 20 years and over 80% have smoked for more than 30 years." Adenocarcinomas probably originate in embryonic rests, as suggested by Graham [12] who states, "Those carcinomas designated as adenocarcinoma, oat cell, and round cell carcinoma arise from an embryonic bronchial bud which has failed to develop into normal tissue and has remained dormant for many years before being transformed into a carcinoma." Because they originate in congenital rests they are likely to become evident at earlier ages. Their incidence is not affected by smoking.

## CLINICAL PICTURE

As mentioned previously, the clinical manifestations of bronchogenic carcinoma begin insidiously and are likely to be disregarded both by the patient and his physician. Cough is without a doubt the commonest manifestation but is frequently disregarded because it has existed for some time and is thought to be due to irritation from cigarette smoking. Whereas it is true that cigarette smoking can produce a cough and expectora-

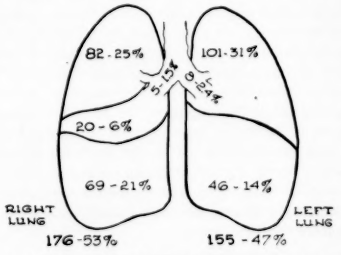


Fig. 4.—Anatomic location of lesion in 331 cases in which resection was done.

12. Graham, E. A.: Primary Cancer of the Lung with Special Consideration of Its Etiology, Bull. New York Acad. Med. 27: 261, 1951.

tion, any change in the cough should be considered of significance. Ninety per cent of our patients in whom resections were done had a cough, and in 55% it was the first symptom (Fig. 5). Not infrequently the earliest manifestation of a bronchogenic carcinoma is a respiratory tract infection. A lower respiratory tract infection which does not subside as it normally should suggests a possibility of bronchogenic carcinoma. In 55% of our

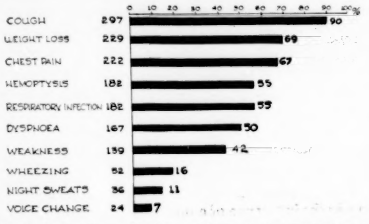
0 10 20 30 40 50 60 70 80 90 100%
COUGH 297 90
WEIGHT LOSS 229 69
CHEST PAIN 222 67
HEMOPTYSIS 182 55
RESPIRATORY INFECTION 182 55
DYSPNOEA 167 50
WEAKNESS 139 42
WHEEZING 52 16
NIGHT SWEATS 36 11
VOICE CHANGE 24 7

Fig. 5.—Symptoms on hospital admission in 331 patients in whom resection was done. Average duration was 12.3 months.

cases there was a history of a previous respiratory tract infection which was diagnosed either as influenza, viral pneumonia, or nonspecific pneumonitis, and it was the first manifestation in 22%. In each instance there were persistent symptoms after recovery from the acute infection. Hemoptysis is a manifestation which should never be disregarded, and although, when occurring in a man past 40, it does not necessarily mean bronchogenic carcinoma, it is a symptom which must be thoroughly investigated. It was present in 55% of our cases. Thoracic discomfort in a person who previously was well also demands investigation. Initially it is merely a consciousness of one's chest and not pain. The development of wheezing in a person, particularly in a man past 40, is suggestive of bronchogenic carcinoma because it means bronchial obstruction. An unexplained thoracic discomfort in any man past 40 must be thoroughly investigated to exclude bronchogenic carcinoma. Voice change which is the result of involvement of the recurrent laryngeal nerve fortunately occurs infrequently, because it represents extension beyond the lung. It was present, however, in 7% of our patients in whom resections were done. Whereas it has been believed by many to represent a contraindication to operation, we have not considered it as such. Although realizing that recurrent laryngeal paralysis means extension to the mediastinum and the recurrent nerve, it does not mean necessarily that resection cannot be done. Similarly, we do not believe that phrenic nerve paralysis should be considered a contraindication to exploration.

13. Rigler, L. G.: Roentgen Examination of the Chest: Its Limitations in the Diagnosis of Disease, J. A. M. A. **142**: 773, (March 18) 1950.
14. Scamman, C. L.: Follow-Up Study of Lung Cancer Suspects in Mass Chest X-Ray Survey, New England J. Med. **244**: 541, 1951.
15. Boucot, K. R.: Mass Surveys as Case Finding Techniques for Pulmonary Neoplasms, Am. Rev. Tuberc. **62**: 501, 1950.
16. Effler, D. B., Blades, B., and Marks, E.: The Problem of Solitary Lung Tumors, Surgery **24**: 917, 1948.
17. O'Brien, E. J., Tuttle, W. M., and Ferkarey, J. E.: The Management of the Pulmonary "Coin" Lesion, S. Clin. North America **28**: 1313, 1948.
18. Husfeldt, E., and Carlsen, C. J.: Diagnostic Thoracotomy for Solid Pulmonary Infiltrates, Thorax **5**: 229, 1950.
19. Sharp, D. V., and Kinsella, T. J.: The Significance of the Isolated Pulmonary Nodule, Minnesota Med. **33**: 886, 1950.

The late manifestations of primary cancer of the bronchus are fever, pain, digestive disturbances, and emaciation and represent infection, breakdown of the tumor, and extension to other structures. Therefore, they are of little significance as regards early diagnosis or effective treatment.

## DIAGNOSIS

Because the symptoms of bronchogenic carcinoma occur so insidiously, it is hoped that an increasing use of routine chest x-rays every six months in men past 40, particularly in heavy smokers, will detect many cases of bronchogenic carcinoma before symptoms occur. Rigler [13] states that peripheral lesions are invariably demonstrable roentgenographically before symptoms and signs are present. Scamman [14] reports that in a total of 536,012 small chest x-rays, 43 cases (7.8 per 100,000) of bronchogenic carcinoma were detected. Overholt [11] in 145 chest lesions detected on mass chest surveys reported 35 cases of primary lung cancer. Boucot [15] found in 156,920 persons surveyed 34 malignant lesions (1 per 5,000). She also found that in a survey of 40,607 apparently healthy workers in industry, 0.14% had a primary lung neoplasm. Because of this, she advocated that "because of the prevalence of lung cancer among men over 45 years of age this particular group should be checked every six months whenever possible." Silent lesions detected by x-ray must be considered as possibly bronchogenic carcinoma, especially in men past 40. Effler, Blades, and Marks [16] found that of 24 such lesions detected in military personnel 4 were malignant. O'Brien, Tuttle, and Ferkarey [17] in 21 patients with solitary pulmonary shadows reported 8 (38%) with bronchogenic carcinoma. Husfeldt and Carlsen [18] found four bronchogenic carcinomas among 33 cases of solitary pulmonary nodules. Sharp and Kinsella [19] in a series of 96 cases of isolated pulmonary nodules, of which 55 were histologically verified, found 11 bronchogenic cancers. Whereas it is possible for a symptomatic lesion to be so situated that it would not be demonstrable on an x-ray

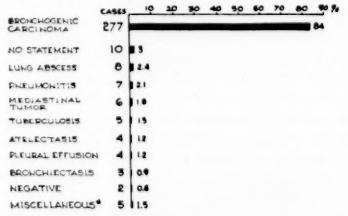
CASES 10 20 30 40 50 60 70 80 90 %
BRONCHOGENIC CARCINOMA 277 84
NO STATEMENT 10 3
LUNG ABSCESS 8 2.4
PNEUMONITIS 7 2.1
MEDIASTINAL TUMOR 6 1.8
TUBERCULOSIS 5 1.5
ATELECTASIS 4 1.2
PLEURAL EFFUSION 4 1.2
BRONCHIECTASIS 3 0.9
NEGATIVE 2 0.6
MISCELLANEOUS* 5 1.5

Fig. 6.—Roentgen diagnosis of 331 cases in which resection was done. * Indicates empyema, fibrosis, congenital cystic disease, lymphoblastoma, and elevation of diaphragm.

of the chest, such is unusual. Because the resectability incidence is so high in asymptomatic lesions (100%, with 75% showing no lymphatic spread [11]) and is so low in patients with symptoms (35% in our series, 70% of which already had extension beyond the lung), it cannot be overemphasized that every pulmonary shadow must be viewed with suspicion and exploration insisted on much more frequently than previously.

In patients with symptoms the diagnosis of bronchogenic carcinoma is usually not difficult if one only thinks of its possible existence. One of the most valuable diagnostic methods is roentgenography, not only because of the ease with which it can be performed, but also because it gives a high percentage of abnormal findings (Fig. 6). Roentgenography will demonstrate a shadow produced by the tumor resulting from infiltration

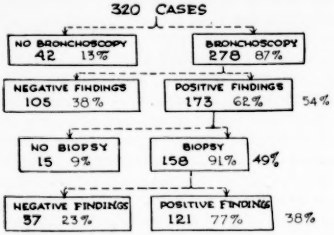


Fig. 7.—Results of bronchoscopic examinations in 320 cases in which resection was done.

of the pulmonary parenchyma or by atelectasis. The latter occurs whenever a bronchus is completely occluded by the tumor; air cannot pass beyond the site of the obstruction, and air from the alveoli distal to the tumor is absorbed. In this instance the shadow produced is much greater than would be produced by the tumor. It must be remembered, therefore, that all patients with massive shadows do not necessarily have extensive lesions. An even earlier roentgenographic manifestation is obstructive emphysema, which occuss as a result of an incompletely obstructing tumor of the bronchus. Because the bronchi are expansile and change their size during inspiration and expiration, a tumor which completely occludes the bronchus during expiration, at which time the bronchus is contracted, incompletely occludes the bronchus during inspiration, thus permitting the entrance of air into the bronchus and lung distal to the tumor but not permitting the exit of air during expiration. In this way an overdistention of the lung distal to the tumor occurs. In the present series of cases in which resection was done, a bronchogenic carcinoma was suspected roentgenologically in 84%, demonstrating the high incidence of correct diagnoses by this method. In those lesions located in the upper lobe bronchi, bronchography may be of value in demonstrating a bronchial obstruction which is suggestive of a bronchogenic neoplasm.

Early in our experience with bronchogenic carcinoma, bronchoscopy was thought to be the most valuable method of diagnosis, but it is now generally accepted that although bronchoscopy should be done in all instances, the percentage of carcinoma diagnoses made by this procedure is relatively small because most bronchogenic cancers are either in the periphery or in the upper lobe bronchi. Bronchoscopy should be done in every instance, however, not only because a biopsy study can be made of the lesions which are visible, but also because considerable information can be obtained by inspection of the trachea, carina, and the main stem bronchi, which may be of value in determining operability. However, in the present series, a diagnosis of carcinoma was made bronchoscopically in only 38% of the cases (Fig. 7).

A relatively newer method, cytological examination of sputum or bronchial secretions, has become a most valuable diagnostic procedure and should be employed in all suspected cases. In 112 cases of proved primary cancer of the lung in our series, cytological examination indicated cancer in 76 (68%). There was only one false indication. This is, however, a difficult diagnostic procedure. It requires the services of a very good pathologist, one trained in cytological diagnosis and also willing to spend many hours looking for malignant cells.

## TREATMENT

The treatment of bronchogenic carcinoma is pneumonectomy with complete en bloc removal of all the mediastinal nodes. Although Churchill and Sweet [20] have recently emphasized the desirability of lobectomy, we are convinced that lobectomy is not the method of choice in the treatment of bronchogenic carcinoma and should be used only when a pneumonectomy is contraindicated. All patients with bronchogenic carcinoma should be carefully studied preoperatively to determine their pulmonary function, in order to evaluate their ability to withstand the removal of an entire lung. Unless pulmonary studies suggest that a pneumonectomy will not be tolerated, lobectomy should not be done. Only by pneumonectomy and en bloc removal of all the mediastinal nodes can a high incidence of cure be obtained, and it is just as essential to remove the mediastinal nodes in bronchogenic carcinoma as it is to remove regional lymph nodes in carcinomas elsewhere.

Unfortunately, largely due to the fact that the medical profession still considers bronchogenic carcinoma an infrequent lesion and does not consider it as a possibility in a man past 40 in whom a relatively insignificant and mild thoracic discomfort has developed, the diagnosis is frequently delayed. In fact, in our series, there was an average delay of 12.3 months from the onset. Less than 10% had symptoms of two months or less, and only 0.9% were asymptomatic. Probably because of this, 385

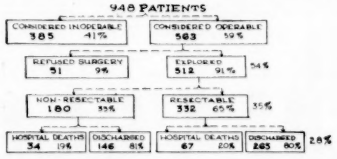


Fig. 8.—Results in the management of 948 patients with bronchogenic carcinoma.

(41%) of the 948 patients were obviously inoperable when first seen (Fig. 8). Five hundred sixty-three were considered operable, of which 51 (9%) refused surgery and 512 (91%) were explored (54% of the entire group seen). Of the 512 explored, resection could not be done in 180 (35%) because of extensive involvement of the

20. Churchill, E. D.; Sweet, R. H.; Soutter, L., and Scannell, J. G.: Surgical Management of Carcinoma of the Lung; a Study of the Cases Treated at the Massachusetts General Hospital from 1930 to 1950, J. Thoracic Surg. **20**: 349, 1950.

heart or large vessels. Of this group 34 (19%) died in the hospital, the high mortality rate being due to associated disease and not to the exploration. Of the 332 patients in whom resection was done (65% of those explored and 35% of the entire group), 67 died in the hospital (20%) and 265 were discharged from the hospital (28% of the entire group).

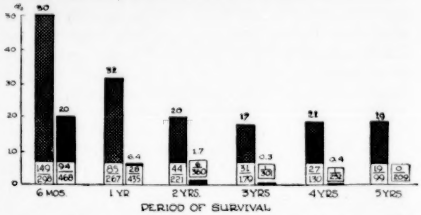


Fig. 9.—Comparison of survival rates in patients in whom resection was done and in patients in whom it was not done. Hatched bar indicates patients in whom resection was done and black bar, patients in whom it was not done. Figure in top half of white bar indicates number of patients alive; figure in bottom half, total number of patients.

It is interesting to compare the incidence of exploration and resectability in the private and Charity Hospital series. In 46% of the cases of the entire goup, no operation was deemed advisable; exploration was done in 54% and resection in 35%. These same percentages in the private group were 34, 66, and 43%, respectively; while in the Charity Hospital series, they were 63, 37, and 23%, respectively. It is evident that the Charity Hospital patients are more likely to neglect themselves and are less likely to consult a physician, even though facilities are available to them at no cost. There has been a slight increase in the incidence of resectability throughout the years from 1935 to 1951, but this has been principally in the Charity Hospital series. Whereas resection was possible in only 8% of the patients at Charity Hospital in the period 1935 to 1941, resection was done in 33% from 1949 to 1951. These respective percentages in the private series are 42% and 49%.

Although 332 resections were done, unfortunately in most cases the lesion was extensive and had already involved some other structure. In 232 the resection was termed a palliative resection, which means that the tumor had already extended beyond the lung, either to involve the mediastinal nodes or the mediastinal pleura, pericardium, heart, chest wall, or diaphragm. In only 90 cases was the lesion apparently limited to the lung. Extensive involvement necessitated extensive resection, as illustrated by the fact that 33 of the patients required intrapericardial ligation of the major vesels, 13 had suture of an auricle, 13 resection of a major portion of the chest wall, and 11 resection of a major portion of the diaphragm.

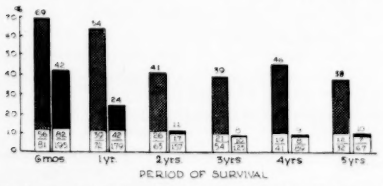


Fig. 10.—Comparison of survival rates after resection according to extension and localization of the lesion. Hatched bar indicates cases of localized disease and black bar, cases of extensive disease. Figure in top half of white bar indicates number of patients alive; figure in bottom half, number of patients in whom resection was done.

Although there was an over-all mortality rate of 20%, the mortality rate has decreased in more recent years. Whereas in the period 1935 to 1941 the mortality rate was 48%, from 1942 to 1946 it was 20%, and from 1947 to 1951 it was 17%. The decrease in mortality rate has been noticed particularly in the more advanced cases, in which there is extension of the carcinoma beyond the lung. The mortality rate in the cases in which the lesion was limited to the lung was 14% and in the cases in which it had extended beyond the lung, 22%. The mortality rate in the latter group in the period 1935 to 1941 was 63%; whereas in the period 1947 to 1951 it was 18%.

Of the 67 hospital deaths, 45% (30 cases) were due to cardiovascular disorders, of which most were cardiac disorders (25 cases). Thirty per cent (18 cases) were due to respiratory disorders, eighteen per cent (12 cases) to hemorrhage, and seven per cent to miscellaneous causes. The fact that the greatest number of patients were in the sixth decade of life, in which cardiovascular disease is prevalent, undoubtedly accounts for the high incidence of cardiovascular deaths, and there will always be an irreducible minimum of deaths from this cause. Because of this, it is imperative that careful cardiovascular surveys of all patients with bronchogenic carcinoma should be made before operation in order to reestablish good vascular function.

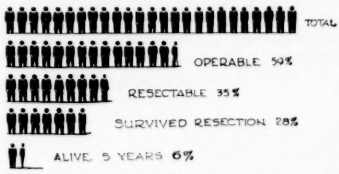


Fig. 11.—Management and results in 948 patients with bronchogenic carcinoma.

The period of survival of patients subjected to resection can be seen in figure 9. These figures are significant because they do not take into consideration deaths from other causes, and since most of these patients were of advanced ages, deaths from other causes are likely. It is our belief, however, that only by considering the survivals after a period of time can one evaluate the results obtained. It is of interest that whereas there is a rapid decrease in the survival rate for two years following pulmonary resection, a plateau is reached after that period of time, and approximately the same percentage are alive at the end of five years as were alive at the end of two years. In other words, a patient who has survived for two years following a pneumonectomy for bronchogenic carcinoma has a good chance of being alive at the end of five years.

As might be imagined, there is a good deal of difference between the curative and palliative resections. Of

the patients in whom "palliative resection" was done, 42% were alive at the end of six months, as compared with 69% of those in whom curative resection was done (Fig. 10). At the end of a year these respective percentages were 24% and 54%. At the end of five years they were 10% and 38%. It is thus seen that even among the advanced patients who are treated by pneumonectomy, 1 out of 10 is alive at the end of five years; whereas among those patients in whom there is no evidence of gross extension beyond the lung, approximately 4 out of 10 are alive at the end of five years.

The value of resection in bronchogenic carcinoma is illustrated when one compares the survival rates obtained in the group of patients submitted to resection with the survival rate of those patients in whom resection was not done. Obviously the latter group is composed of much more advanced patients, generally because they were either inoperable when first seen or the lesion was not resectable when operated on. However, there were patients in whom the lesion appeared clinically resectable but who refused operation. All patients who were not subjected to resection were treated with other therapeutic palliative procedures, such as x-ray, nitrogen mustard, other chemotherapeutic agents, or a combination of all. Whereas at the end of six months 50% of the group in which resection was done were alive, only 20% of the group in which resection was not done were alive (Fig. 9). At the end of a year these respective percentages were 32% and 6.4%; at two years, 20% and 1.7%; at three years, 17% and 0.3%. One patient out of 252 in whom resection was not done survived four years, but died shortly thereafter. No patient survived five years; whereas 19% of the patients subjected to resection were alive at the end of five years.

The results from treatment of bronchogenic carcinoma are not as satisfactory as they should be because of our 948 patients only 59% were operable, 35% were resectable, 28% survived resection, and only 6% were alive at the end of five years (Fig. 11). This is, indeed, a low salvage rate, but is undoubtedly due to the fact that there was considerable delay in the establishment of diagnosis and the institution of radical therapy. The fact that an average of over a year elapsed from the onset of the first symptoms until therapy was instituted accounts for the low incidence of resectability and the extremely low incidence of five-year salvage. It is our belief that as soon as the profession becomes cognizant of the frequency of bronchogenic carcinoma and considers the possibility of its existence in all men past 40 who have an unexplained thoracic discomfort earlier diagnoses will be made. It is also our hope that with an increasing interest in screening methods, such as mass chest roentgenography, many lesions will be detected before the patient has any clinical manifestations of the condition. As has been shown by Overholt and others,[21] the incidence of resectability in this group can approach 100%. It is further hoped that physicians will urge all patients, especially men past 40 who smoke heavily, to have thoracic roentgenography done every 6 to 12 months and that whenever a shadow is detected prompt exploration should be done if bronchogenic carcinoma cannot be excluded within a short period of time.

3503 Prytania St. (Dr. Ochsner).

21. Overholt,[31] Rigler,[35] Scamman,[31] Boucot,[35]

# EFFECT OF CANCER ON LIVER ENZYMES

*Jesse P. Greenstein, Ph.D., Bethesda, Md.*

There are two general approaches that the chemical analyst may employ in the study of malignant disease. The first of these is the direct chemical analysis of tumors, and comparison of such findings with those obtained in identical fashion on normal tissues and organs. The second approach is the chemical analysis of the tissues, circulating fluids, secretions, and excreta of cancerous patients, and comparison of such findings with those obtained on the same materials from normal persons. In the former case, it is expected that such information will yield a picture of the chemical processes inherent in the neoplastic transformation of tissues. In the latter case, it is expected that such information will give a description of the systemic effects induced by a tumor on the host that bears it, at a site or sites removed from the tumor, and in a state free of metastatic involvement. It is with this second of the chemical analytic approaches that this paper will deal.

Many striking and clear-cut phenomena have been noted in the study of the effects induced in the cancerous patient as a consequence of the presence of a tumor. The unhappily familiar cachexia of patients with advanced neoplastic disease is a clinical symptom of these effects, sometimes exaggerated, sometimes partly masked, as a result of secondary causes, such as bacterial infection, generalized toxemia, malnutrition, and psychic depression, but nevertheless fundamentally due to systemic alterations produced by the tumor on the host. In view of the complexities involved in the study of such effects in the human patient, a great deal of the efforts in this area of cancer research has been conducted on experimental animals.

## EXPERIMENTAL APPROACH

The experimental studies that my colleagues and I undertook several years ago were essentially naive and empirical.[1] We investigated a number of chemical and enzymatic systems under the same conditions in the tissues of normal and of cancerous experimental animals which were located at a distance from the tumor. Most of the tumors borne by these animals were of the trans-

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1. Greenstein, J. P.: Biochemistry of Cancer, New York, Academic Press, Inc., 1947.

planted variety, thus insuring their malignant character. None of the tissues studied had any metastatic involvement. The animals were in good nutritional status and were free of infection. Animals with tumors of all sizes and of different rates of growth were studied. As controls, normal and pregnant animals were employed, as well as animals bearing subcutaneous implants of rapidly growing embryonic minces. Thousands of animals were used in these studies.

Only those chemical systems were studied that were capable of being described in precise terms. Comparison in the level of these systems in the tissues of normal and of cancerous animals was placed on the following basis. The animals were decapitated and bled, and the tissues immediately excised and ground to a fine homogenate. The homogenate was taken up to a known volume either with distilled water or with buffered saline solution. An aliquot of the suspension was then mixed with the desired compound whose chemical transformation was to be studied, and the rate of this transformation followed by an appropriate experimental device. This rate is proportional to the amount of enzyme present in the tissue and presumably specific for the compound added.

It would be most desirable to make the comparison between such rates in two kinds of tissues on the basis of the rate per cell of each tissue. This is not readily feasible. Since it is presumed that all cells on the average, of a liver for example, yield the same amount of extractable nitrogen as all cells, on the average, of another liver of an animal of the same species, age, sex, and general physical condition, we have made the comparison between rates of comparable tissues on the basis of unit nitrogen. Obviously a normal liver and a cirrhotic, or fatty-degenerated, liver could not be compared on this basis. In our experimental animals, with or without tumors, the comparable tissues were microscopically indistinguishable. Our aim to observe how each cell, or unit volume, or unit mass, of a tissue responds to the presence of a distant tumor is only approximately served by the device of basing this change on a unit weight of nitrogen, and, although we are aware of this approximation, we cannot, despite all other bases proposed, think of a better device.

Early in this study we noted, with some surprise, that nearly all enzyme systems in all the tissues studied were at very nearly the same level in normal and in cancer-bearing animals. Only one system, and that in the liver, appeared to be markedly affected by the presence of a cancer elsewhere in the animal. This system was found to be catalase, a finding already anticipated by Brahn, who worked with human material and who reported his findings in 1916.[2] Catalase is a hematoporphyrin enzyme that acts on hydrogen peroxide to decompose it to water and molecular oxygen, thus:

$$2H_2O_2 \xrightarrow{\text{catalase}} 2H_2O + O_2 \uparrow$$

The level of this enzyme in tissues was followed by mixing the homogenate with hydrogen peroxide and measuring the rate at which oxygen gas was evolved. When liver homogenates prepared under identical circumstances from normal animals and from cancer-bearing animals were compared, the rate of evolution of oxygen gas from added peroxide was always less for the latter animals than for the former. The degree of difference between the livers from the two sources varied considerably with the experimental conditions (the concentration of peroxide, temperature) but in any event there invariably appeared to be more catalase activity per unit of nitrogen of tissue in the livers of normal animals than in the livers of those with such diverse tumors as lung carcinomas, breast carcinomas, fibrosarcomas, and bone tumors.

In the face of this invariable finding of a diminished catalase level in the livers of cancerous animals was the equally constant finding of normal levels of cytochrome oxidase, cytochrome C, peptidase, dehydropeptidase, amino acid oxidase, acid and alkaline phosphatase, ribonuclease, desoxyribonuclease, and xanthine dehydrogenase. These symptoms remain at a normal level in livers of cancerous animals which simultaneously reveal a marked diminution in the catalase level. Under conditions of severe starvation and of infection, the total liver proteins diminish and all of these symptoms are reduced in magnitude. Only in the cancerous animal is the catalase system affected.

Three tissues in the animal body have a notably high level of catalase activity. These are liver, kidney, and erythrocyte. Although in the cancer-bearing animal the liver catalase activity is markedly depressed, that of the kidney is little if at all affected, while the erythrocyte catalase is not affected at all.

### EFFECT OF GROWTH RATE OF TUMOR

In general, the reduction of the liver catalase level is noted only in animals bearing rapidly growing tumors and is readily observable when the tumor weight is at least about 5% of the body weight of the animal. With slow-growing tumors, the liver catalase activity is apparently normal. It is possible to conceive of a competitive aspect involving the toxic effect of the presence of the tumor and the repair mechanism of the liver, whereby the former predominates in the case of rapidly growing tumors and the latter in the case of very slow-growing tumors.

### REVERSIBLE EFFECT OF TUMOR

Rats when inoculated subcutaneously with a rapidly growing transplanted tumor demonstrate a proportionate decrease in their liver catalase level with growth of the tumor. When such animals are anesthetized and their tumors surgically removed, the liver catalase level is restored to normal levels within 48 hours. Reinoculation of the tumor produces another fall in the liver catalase level, followed by a second restoration when the tumor is excised.

Mice inoculated intracaudally with a rapidly growing tumor also show a proportionate decrease in liver catalase activity levels, which are restored to normal at caudectomy. Other strains of mice inoculated intraperitoneally with a tumor which grows rapidly for a while, and then spontaneously regresses, also show a diminution in liver catalase during the period of growth of the tumor, followed by a gradual restoration to the normal level during the period of tumor regression.

Thus, no matter at what site the transplanted malignant tumor is grown in the animal, the liver catalase

2. Brahn, B.: Further Researches on the Enzymes in the Liver of the Cancerous, Sitzungsber. kgl. Preuss. Akad. Wissensch. **20**: 478-481, 1916.

activity will diminish if the tumor grows fast enough, and no matter how the tumor is removed, the liver catalase activity will come back to normal. The effect of the tumor on the liver is therefore reversible.

### EFFECT OF GROWING EMBRYO

Embryonic minces when implanted subcutaneously in mice of the same strain will grow progressively and rapidly for several weeks and then spontaneously regress and disappear. Such mice during the period of rapid growth of such minces, or pregnant mice near term, all possess a normal liver catalase activity. The effect on the liver catalase activity is not due, therefore, to a growing tissue per se, but to a growing tissue which is a tumor.

### IN VITRO STUDIES

Homogenates of normal liver and of tumors mixed together in a test tube have a catalase activity that is the sum of the catalase activities of both tissues. Neither has an effect on the other when mixed in a test tube. The effect noted is apparently only in the living animal.

### EVIDENCE FROM OTHER INVESTIGATORS

Weil-Malherbe and Schade,[3] with the tentative premise that the fall in liver catalase activity might be caused by the high protein requirements of a rapidly growing tumor, studied the progressive decrease of the activity in two series of cancer-bearing rats maintained on a high or low protein diet. Regardless of the nature of the diet, however, the liver catalase activity of the tumor-bearing animal was consistently lowered. Dounce and Shanewise [4] have confirmed the finding of a lowered liver catalase activity in tumor-bearing rats, and in addition, have noted that the same effect occurs in rats infected with leprosy bacteria.

Von Euler and Heller [5] made a study of the distribution of catalase activity in the cytoplasm and formed elements of the liver cells of normal and tumor-bearing rats, and noted that (*a*) catalase in normal animals is nearly equally divided between mitochondria and microsomes, and (*b*) with growth of the tumors, the loss in liver catalase at first occurs chiefly in elements other than the mitochondria, but in later stages of tumor growth the mitochondrial catalase also appreciably diminishes in activity. The presence of the tumor, however, did not apparently affect the amount of the formed elements of the liver cell, as measured by their total nitrogen content.

One of the most extensive recent studies in this field is that of Adams,[6] who noted that, with the subcutaneous injection of a homogenized fibrosarcoma into two strains of mice, the liver catalase activity fell significantly at 24 and 48 hours, rose to normal by the fourth day, and diminished again markedly thereafter. Injection of normal tissues, including embryonic tissue, produced no effect on the liver.

Further studies of the toxic effect of growing tumors in the animal on its tissue catalase level were made by Appleman, Skavinski, and Stein,[7] who noted the much greater decrease in the liver catalase level than in the kidney or erythrocyte level (which were practically normal). These authors also noted an enlargement of the liver in cancerous rats. Together with the observation of the decreased liver catalase level in cancerous animals, Begg [8] noted an enlargement of the adrenal with loss of ascorbic acid and cholesterol.

The observation that, per unit weight of tissue or per unit weight of nitrogen, the catalase activity of the livers of tumor-bearing experimental animals is markedly and uniquely depressed below the normal has now been made in laboratories all over the world. The mechanism of this effect is still somewhat obscure. Conceivably, the effect might be due to some toxic material elaborated by the tumor, which by traveling through the circulation affects the synthesis or storage of catalase in the liver, or it might be due to some abstraction by the tumor of some material essential for such synthesis or storage. A very significant contribution to the solution of this problem was made recently in Japan.

### ISOLATION OF "TOXOHORMONE" FROM TUMORS

In 1949, Nakahara and Fukuoka [9] reported the isolation of a proteose-like material from human cancers which, when injected intraperitoneally into mice, produced a marked diminution in their liver catalase. This material was water-soluble and alcohol-insoluble and had no effect in the test tube on homogenates of normal liver. Later studies showed that similar materials could be obtained from mouse tumors.[10] Greenfield and Meister,[11] in an extensive fractionation study, showed that only catalase of several systems investigated was markedly lowered in the livers of mice given intraperitoneal injections and that two days after such injections the liver catalase activity was restored to normal. Most recently, Nakahara has reported that the effect of the injection of this tumor fraction, to which he has given the designation "toxohormone," can be neutralized by the injection of iron salts.[12] It would appear that this material might produce its effect on the lowering of liver catalase by combining with iron and, in some way, abstracting it from the circulation, thus limiting the synthesis of the iron-containing catalase molecules.[13]

### CONCLUSION

A great deal of effort has been expended in many laboratories in the study of a single enzyme, catalase, in liver as affected by the presence of a tumor in a distant site. Its value at the moment is only theoretical. But it is one of the established phenomena of cancer. Its future practical significance on a clinical level must await further experimentation.

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# DRUG PROPHYLAXIS OF AMEBIASIS

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*Robert F. Korns, M.D., Albany, N. Y.*
*and*
*Charles A. Angelo, M.D., Kings Park, N. Y.*

Amebiasis is well recognized as a problem in institutional groups, and the occurrence of the infection in mental hospitals, particularly among highly disturbed patients, has been described repeatedly.[1] The problem of control presented by these situations is difficult. Clinical cases and high carrier rates usually persist even when the environment is assiduously sanitized to minimize the hazard of transmission through food, milk, water, or fomites, such as eating utensils, clothing, and bedding. The regulation of the personal hygiene of patients, which is frequently complicated by fecal incontinence and coprophagy, is fraught with obvious inherent difficulties. Under such circumstances the attainment of even partial control of transmission of amebiasis is contingent on minimizing both the excretion of cysts of Endamoeba histolytica and the environmental fecal contamination.

The situation in which the present studies were conducted is illustrative of the magnitude of the epidemiological problem of amebiasis inherent in a particular category of institutionalized subjects. An opportunity for examination of the possible usefulness of mass chemotherapy and chemoprophylaxis in the control of amebic infestation of such a population was given.

Of the antiamebic drugs currently available, those which are most effective in clearing E. histolytica from the intestine are ineffective against extraintestinal foci, and those which are effective in the treatment of hepatic amebiasis are unreliable agents against intestinal amebiasis. Because intestinal amebiasis may be cured without affecting incipient hepatic infection, optimum control would require a therapeutic regimen directed against both intestinal and extraintestinal amebiasis.[2] For the purposes of this study, bismuth glycolylarsanilate (milibis®), an effective intestinal amebacide,[3] and chloroquine phosphate (aralen® diphosphate), a highly effective drug for the treatment of hepatic amebiasis [4] as well as malaria,[5] were combined in a tablet comprised of 250 mg. of bismuth glycolylarsanilate and 75 mg. of chloroquine phosphate.[6]

From the Sterling-Winthrop Research Institute, Rensselaer, N. Y. (Drs. Berberian and Dennis); the Bureau of Epidemiology and Communicable Disease Control, Division of Medical Services, New York State Department of Health (Dr. Korns); and the Wassaic State School, Wassaic, N. Y. (Dr. Angelo).

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4. Conan, N. J., Jr.: The Treatment of Hepatic Amebiasis with Chloroquine, Am. J. Med. **6**: 309, 1949.

5. Berberian, D. A., and Dennis, E. W.: Field Experiments with Chloroquine Diphosphate, Am. J. Trop. Med. **28**: 755, 1948.

6. The bismuth glycolylarsanilate and chloroquine phosphate were provided by Winthrop-Stearns, Inc. and the tablets were prepared by the Sterling-Winthrop Research Institute.

7. These surveys were made in connection with other studies by a team of investigators from the National Institutes of Health, Bethesda, Md. Reports are on file in the New York State Health Department.

## MATERIALS AND METHODS

*Study Population.*—During the investigation of clinical amebic dysentery in one building at the Wassaic State School, Wassaic, N. Y., it became apparent that, although clinically recognizable illness due to E. histolytica was not occurring in other buildings, infection with this parasite was widely spread throughout the institution, which houses some 5,000 mentally deficient patients. Stool surveys carried out in 10 representative buildings [7] showed that the carrier rates were high and were more or less parallel to the degree of mental deficiency and the related quality of personal hygiene of the patients. Among patients of low grade mentality the observed prevalence of carriers was 55%, compared with 17% among patients with high grade mentality; whereas the carrier rate among employees scattered throughout the institution was only 4%.

Two infirmary buildings, "O" and "P," presented a situation which appeared appropriate for mass chemoprophylactic studies. Building "O" housed 229 male inmates having a median age of 15 years. Building "P" housed 207 male inmates, whose median age was 25 years. The mental caliber of the inmates of both buildings was extremely low; about 10% were bedridden. In each building the ambulant patients intermingled in a single large room during the day and were housed in four separate wards at night. The records indicated that some 80% of the subjects exhibited fecal and urinary incontinence from time to time. Obviously, despite rigorous housekeeping measures to keep the environment clean, it was impossible to prevent completely the transfer of the more hardy fecal borne infections. In neither of these buildings had clinical amebiasis been recognized during the past decade, and bacillar dysentery apparently had been absent for at least four years. The two buildings were served by the same central kitchen supplying the rest of the institution for the main meal of the day, but breakfast and supper were furnished from a separate kitchen in each of the two buildings. Careful sanitary survey of the premises satisfactorily excluded the likelihood that amebiasis was being spread through water, milk, or food. On the other hand, the strong fecal odor in the buildings was almost sufficient to prove, in a crude way, the more probable routes of transmission. Frequent baths, accompanied by changes of clothing and linen, and daily scrubbing of floors and walls failed to eliminate fecal contamination and odor. It was in this milieu that the study described below was carried out.

*Laboratory Procedures.*—The diagnosis of infection with E. histolytica was based on examination of samples of casual stool specimens. The specimens were sealed in waxed cups with fitted covers, labeled with an identifying code, and transported to the laboratory at the Sterling-Winthrop Research Institute at Rensselaer. The stool specimen was approximately 24 hours old at the

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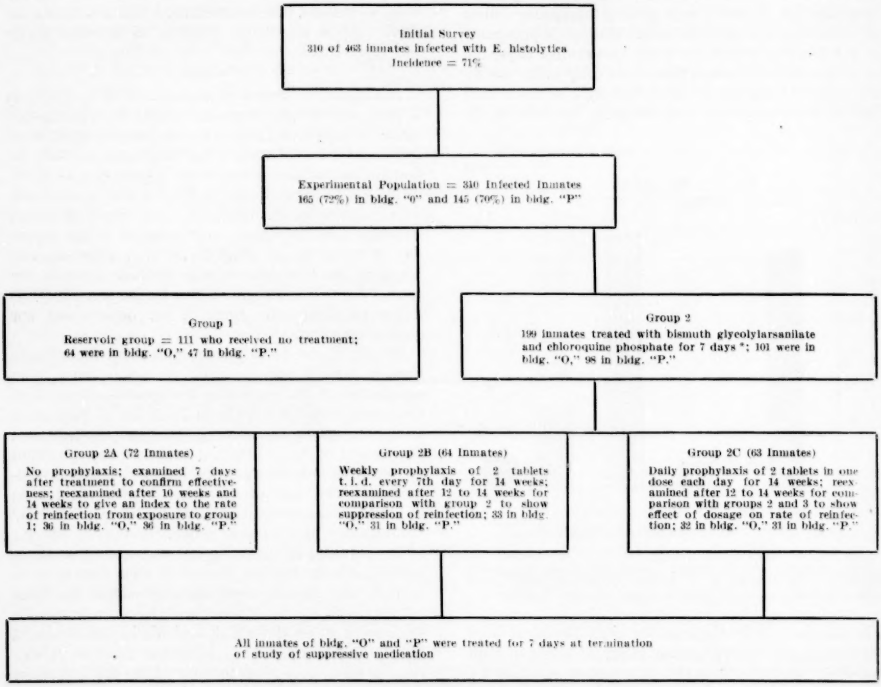
time of examination; hence diagnosis was based on demonstration of characteristic cysts. The zinc sulfate flotation procedure for concentration of cysts was used for all samples, and D'Antoni's iodine stain was used to facilitate microscopic examination. In some instances slides of fecal smears were fixed in Schaudinn's solution and stained with Heidenhain's iron hematoxylin. Also, the examination of some specimens was extended by culturing in Boeck and Drbohlav's medium.

On the first round of examinations, when hematoxylin-stained slides and culture were used as well as zinc sulfate concentration the number of cases detected was not appreciably greater than when the concentration method was used alone. Hence, to conserve time, the concentration procedure was relied on for all subsequent examinations. For any given round of examinations (plan of experiment in table 1), samples of at least three stool specimens were thoroughly examined before a subject was diagnosed as not infected; if the first or second specimen was clearly positive, examination was discontinued; if the diagnosis was in doubt because of only rare atypical cysts, additional stools were examined. The same procedure was used for all follow-up examinations.

*Design of Study.*—The design of the study is shown diagrammatically in table 1. An initial survey was carried out in April, 1950. Because not more than three stools per patient were examined, it was recognized that all cases of infection would not be demonstrated, but the findings were adequate for the purposes of the study planned. A total of 436 persons were examined, of whom 310 (71%) yielded stools that were positive for cysts of E. histolytica. In building "O" the infection rate was 72%, and in building "P" it was 70%. Seventy per cent of the total number of infected subjects were detected on the first stool examination, an additional 13.4% were detected on the second stool examination, and 16.6% were detected on the third examination. Study of the carrier prevalence in each 5 year age group and according to the length of residence in the institution failed to show any significant variation; apparently the exposure to infection was so heavy that the effect of such factors was totally obscured.

The population of 310 inmates whose stools were positive for E. histolytica was divided into four groups by alternate selection from an alphabetical list of the patients, with care being taken to provide proportional dis-

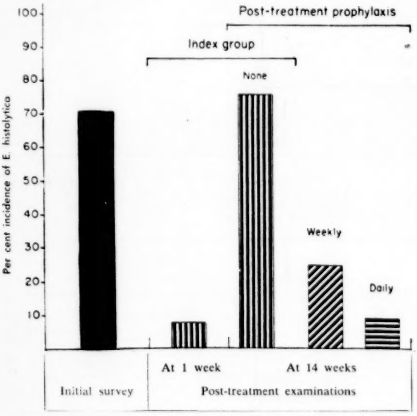
TABLE 1.—*Plan of Experiment*


Initial Survey
310 of 463 inmates infected with E. histolytica
Incidence = 71%
Experimental Population = 310 Infected Inmates
165 (72%) in bldg. "O" and 145 (70%) in bldg. "P"
Group 1
Reservoir group = 111 who received no treatment; 64 were in bldg. "O," 47 in bldg. "P."
Group 2
199 inmates treated with bismuth glycolylarsanilate and chloroquine phosphate for 7 days *; 101 were in bldg. "O," 98 in bldg. "P."
Group 2A (72 Inmates)
No prophylaxis; examined 7 days after treatment to confirm effectiveness; reexamined after 10 weeks and 14 weeks to give an index to the rate of reinfection from exposure to group 1; 36 in bldg. "O," 36 in bldg. "P."
Group 2B (64 Inmates)
Weekly prophylaxis of 2 tablets t. i. d. every 7th day for 14 weeks; reexamined after 12 to 14 weeks for comparison with group 2 to show suppression of reinfection; 33 in bldg. "O," 31 in bldg. "P."
Group 2C (63 Inmates)
Daily prophylaxis of 2 tablets in one dose each day for 14 weeks; reexamined after 12 to 14 weeks for comparison with groups 2 and 3 to show effect of dosage on rate of reinfection; 32 in bldg. "O," 31 in bldg. "P."
All inmates of bldg. "O" and "P" were treated for 7 days at termination of study of suppressive medication

* All subjects weighing less than 80 lb. received half doses. Juveniles were distributed proportionately in the experimental groups.

tribution of those who were first reported infected on the first, second, or third stool specimen. As shown in table 1, group 1 was arbitrarily made slightly larger than the other groups and consisted of 111 inmates who were left without any form of antiamebic medication in order to provide a known source of exposure to reinfection. None of this group showed symptoms of amebiasis; hence the temporary withholding of medication was justifiable. Groups 2A, B, and C were comprised of 72, 64, and 63 persons, respectively.

In order to estimate the prophylactic effect of the proposed medication regimens, it was first necessary to reduce the incidence of infection in the experimental groups to a minimum. For this reason the 199 persons in groups 2A, B, and C were given a therapeutic course of bismuth glycolylarsanilate and chloroquine phosphate in combination tablets for seven consecutive days; the daily dosage was 2 tablets three times daily (after meals) for persons weighing 80 lb. (36.3 kg.) or more and half of this dosage for those weighing less than 80 lb.




Effect of medication with bismuth glycolylarsanilate and chloroquine phosphate on the incidence of E. histolytica in the presence of known sources of reinfection.

The members of the three groups given treatment were distributed proportionally throughout all wards of both buildings, so that subsequent exposure to infection by association with group 1 was reasonably uniform.

After the seven day course of therapy all persons comprising group 2A were reexamined to establish the therapeutic effect and to provide a reference point for demonstrating the frequency of reinfection during subsequent months. Group 2A served as the index of the rate of reinfection and/or relapse. On completion of the therapeutic course, the members of groups 2B and C were shifted to dosage regimens designed to demonstrate possible prophylactic or suppressive action of the medication. The 64 persons in group 2B were treated every seventh day with the equivalent of one daily dose of the initial therapeutic schedule, i. e., 2 tablets three times a day. The 63 persons in group 2C continued to receive the medicament daily, the dosage being 2 tablets at once for those weighing 80 lb. or more and 1 tablet for those under that weight. Prophylactic medication was maintained for 14 weeks.

Eight weeks after completion of the therapeutic course, examination of a series of three stool specimens from each person in group 2A showed that 75% of this group again had stools positive for E. histolytica. It was decided, therefore, to study again all persons in groups 2A, B, and C to determine the effectiveness of the prophylactic medication in the presence of the known infected subjects of group 1. During the period from the 10th to 14th week of prophylaxis, a series of three stool specimens was submitted from each person in the three groups. All specimens were labeled by code number only, so that the persons concerned with examining the stools had no knowledge whatever as to which group was represented.

## RESULTS

In addition to the post-therapeutic check-up on group 2, steps were taken to evaluate crudely the rapidity with which therapy took effect. For this purpose single stool specimens were collected from 36 persons on both the first and second day of treatment. Twenty-five, or 69%, of the specimens collected on the first day of treatment were negative for E. histolytica cysts. Stool specimens from the same 36 persons were collected on the second day of treatment, of which 32 (89%) were negative. Three of the four persons with positive stools on the second day had had negative ones on the first day. With minor variations, the effect of the medicament was quickly apparent.

Results of the prophylactic experiment are summarized in table 2 and the chart. As noted above, after completion of the seven day therapeutic course, stool specimens were obtained from 71 of the 72 patients in group 2A on the first, second, and sixth post-treatment day. Only 1 of the 71 first post-treatment day specimens was positive, 2 more were positive on the second post-treatment day, and an additional 2 were positive on the sixth post-treatment day. Thus, using three stool examinations as an index, only 5 of the 71 patients (7%) persisted in remaining infected, and these represent therapeutic failures. However, since four of these subjects had positive stools on only one of the three examinations, additional stools were obtained from these same subjects on the eighth and ninth post-treatment day; in only one patient (1.4%) was the stool persistently positive. It is apparent that within the limitations of the type of measurement used, the therapy was very effective (93 to 98.6% freed of infection).

When group 2A was reexamined after 10 to 14 weeks of exposure to the known infected persons of group 1, cysts of E. histolytica were demonstrated in 55 of the 72 subjects examined. The infection rate had increased from 7% or less to 76%. As shown in table 2, only 16 of the 64 subjects who had been receiving one-seventh of a therapeutic course of bismuth glycolylarsanilate and chloroquine phosphate at weekly intervals were infected, and only 6 of the 63 subjects who had been receiving medicament daily had cysts of E. histolytica. It is apparent that daily medication with a combination of 0.5 gm. of bismuth glycolylarsanilate and 0.15 gm. of chloroquine phosphate (adult dose) essentially resulted in

complete suppression of reinfection, since the observed infection rate of 10% was not significantly greater than the post-treatment residual rate observed in the index group. The weekly administration of a full daily dose (1.5 gm. of bismuth glycolylarsanilate and 0.45 gm. of chloroquine phosphate) was somewhat less effective in preventing reinfection with E. histolytica, but the infection rate was only one-third of that observed in the index group. In view of the heaviness of the exposure to a large reservoir of carriers, it is probable that the weekly medication regimen would offer a relatively high degree of protection against amebiasis under more casual conditions of exposure.

It should also be noted that during the course of the final survey three stools were examined from each of 74 patients selected at random from the 126 whose stools were originally negative for E. histolytica; in 36 (50%) the stools had become positive during the three month interim period.

*Clinical Observations.*—The inmates of the two experimental buildings were watched carefully during the period of medication with bismuth glycolylarsanilate and chloroquine phosphate in combination tablets. No clinical evidence of amebiasis was observed in the population. The persons receiving the medicament, both therapeutically and prophylactically, were checked continually for signs of untoward reaction, but none was observed other than the vomiting of the medicament by six patients during the initial one week therapeutic course. To those administering the drugs, it seemed likely that this vomiting was a response to the necessity for swallowing several tablets, rather than a specific toxic effect of the drugs. Medication was not discontinued in any of these patients, and no further difficulties were observed.

Because of the presence in these buildings of many patients who had epileptic seizures from time to time, detailed observations were made as to the extent to which seizures occurred in those receiving treatment. During the two week period following initiation of the therapeutic course, the median number of seizures in a group of 25 epileptics was only one, compared with a median of 23 seizures for these same persons during the previous 12 months. It therefore seemed unlikely that the treatment tended to accentuate the epileptic seizures. During the ensuing months no untoward reactions were observed among patients in the groups receiving daily or weekly prophylactic medication.

TABLE 2.—*Suppressive Effect of Weekly or Daily Prophylactic Medication with Bismuth Glycolylarsanilate and Chloroquine Phosphate on the Incidence of E. Histolytica in 127 Subjects Constantly Exposed to 111 Known Carriers for Ten to Fourteen Weeks*

| | Experimental Group | Medication Regimen | | Distribution by Dosage: Adults No. | Adults No. Infected | Adults % Infected | Juveniles * No. | Juveniles * No. Infected | Juveniles * % Infected | Total No. | Total No. Infected | Total % Infected |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Th.† | Pr.‡ | | | | | | | | | |
| 2A | Index group,§ 1st week post-treatment | Infected | Not infected | 54 | 4 | 7.4 | 17 | 0 | 0 | 71 | 4 | 7.0 |
| 2A | Index group, 10 weeks post-treatment | Infected | Not infected | 55 | 42 | 76.0 | 17 | 13 | 76.0 | 72 | 55 | 76.0 |
| 2B | Prophylaxis, weekly for 14 weeks..... | Infected | Infected | 49 | 12 | 24.0 | 15 | 4 | 27.0 | 64 | 16 | 25.0 |
| 2C | Prophylaxis, daily for 14 weeks..... | Infected | Infected | 51 | 4 | 8.0 | 12 | 2 | 17.0 | 63 | 6 | 9.5 |

* Half dose administered to all subjects weighing less than 80 lb.
† Th. = therapeutic course, dose three times daily for 7 days.
‡ Pr. = prophylactic course following therapeutic course.
§ Treated to clear the stools of E. histolytica but not given prophylactic medication (to provide an index of the efficiency of treatment as well as the rate of reinfection for comparison with groups 3 and 4).

## COMMENT

The data presented above show that the combination of bismuth glycolylarsanilate and chloroquine phosphate was tolerated in therapeutic doses that produced stools that were negative for E. histolytica cysts in at least 93% of a group of patients after one week of medication. These results are comparable to data previously reported for the therapeutic efficacy of bismuth glycolylarsanilate alone.[3] The amount of chloroquine phosphate administered would presumably eliminate any incipient extraintestinal amebic lesions that would not be affected by bismuth glycolylarsanilate.[8] It has also been shown that in the presence of heavy exposure to reinfection with E. histolytica, the weekly administration of one-seventh of a therapeutic course of the bismuth glycolylarsanilate and chloroquine phosphate combination reduced the reinfection rate by approximately two-thirds. The daily administration of one-third of that dose reduced the reinfection rate to a negligible level. Thus the chemoprophylaxis of amebiasis by means of bismuth glycolylarsanilate and chloroquine phosphate has been demonstrated to be a feasible procedure. It also should be noted that chloroquine phosphate, in either the weekly or daily prophylactic regimen used, is adequate for the suppression of malaria.[8] It is apparent, therefore, that either of the regimens used in the current study would be expected to provide a high degree of simultaneous prophylaxis or suppression against both amebiasis and malaria under conditions in which both diseases are sufficiently common to represent a significant risk.

Obviously the environment and population studied are not comparable to the general population in this country, but heavy exposure to amebiasis is not uncommon in institutionalized groups or in some tropical and Asiatic communities. The evaluation of this disease control procedure was therefore made rigorous. These studies are being continued in a manner designed to determine the efficacy of chemoprophylaxis in populations that are exposed less often or less intensively to the infecting bacilli.

One wonders why clinically recognizable illness, particularly dysentery, was not observed in this highly infected population, but no adequate explanation can be offered. In an adjacent infirmary building, housing patients of the same age, mental status, and level of per-

8. Dennis,[5] Conan.[4]

sonal hygiene, who were receiving exactly the same diet, a series of 11 typical cases of amebic dysentery occurred during a two month period just prior to institution of these studies. Two of the persons suffering from amebic dysentery died, one with liver abscess. The carrier prevalence of E. histolytica in that particular building was reported to be slightly lower than in buildings "O" and "P."

It has been pointed out that the amebacidal efficacy of poorly soluble bismuth glycolylarsanilate is reduced by diarrhea [3]; hence this drug, alone or in combination with chloroquine, should be used only after acute dysentery has been controlled; a single dose of emetine is usually sufficient to reduce peristalsis, although unreliable as an amebacide.

The factors responsible for the appearance of amebic dysentery in one group, while another infected group remained asymptomatic under seemingly identical circumstances, are so obscure as to merit special intensive study. Conclusive evidence is lacking that some strains or races of E. histolytica are inherently more invasive than others.

SUMMARY

The administration of 6 bismuth glycolylarsanilate (milibis®) and chloroquine phosphate (aralen®) combination tablets (0.25 gm. of bismuth glycolylarsanilate and 0.075 gm. of chloroquine phosphate) a day for seven days as a therapeutic course was rapidly effective in producing stools which were negative for cysts of E. histolytica in at least 93% of the subjects examined. In the presence of intense exposure to a known reservoir of infection of three months, post-treatment prophylactic administration at weekly intervals of 6 tablets (adult dose) reduced the infection rate to 25%, and daily administration of 2 tablets reduced the infection rate to 10%, compared with a reinfection rate of 76% in the control group. Untoward toxic manifestations from the medicament were not observed. The chemoprophylaxis of amebiasis by administration of bismuth glycolylarsanilate and chloroquine phosphate in combination was demonstrated to be a feasible procedure. Simultaneous chemoprophylaxis of amebiasis and malaria is suggested as an attainable objective, with either of the medication regimens studied.

# CLINICAL MANAGEMENT OF "FUNCTIONAL" DISORDERS

## THE DIAGNOSTIC INTERVIEW

*Malcolm S. M. Watts, M.D.*
*and*
*Dwight L. Wilbur, M.D., San Francisco*

The understanding and sympathetic physician realizes that almost every patient who consults him is worried and anxious. Sometimes the cause of the patient's anxiety is obvious; often it is not. A patient with a fracture or one who has noticed gross blood in the stool is understandably disturbed. His anxiety often results in symptoms which are in addition to those of the underlying pathological process. Such anxieties, however, present little difficulty to the clinician. The symptoms are recognized for what they are and respond rapidly to reassurance, mild sedation, and effective treatment of the obvious disease or injury.

On the other hand, many patients come with anxiety of more obscure cause. It may manifest itself as fatigue, nervousness, tenseness, headache, insomnia, indigestion, or a host of other symptoms. It is with this group that this paper is particularly concerned. Such patients are frequently seen by physicians engaged in the practice of medicine, surgery, or other clinical specialties. Often a thorough diagnostic study is carried out, and if no "cause" is found for the patient's symptoms, both the physician and patient become discouraged or disgusted.

There is reason, however, to adopt a more optimistic attitude toward many of these patients. Actually, there are more hopeful avenues of approach to the management of "functional" disorders than is the case with most "organic" diseases. Psychologically, if the underlying emotional difficulty is recognized, the patient may make a better adjustment, with subsequent improvement in his symptoms. Somatically, there is a large armamentarium of drugs and other treatment which may be used to diminish symptoms. Socially, the physician is often able to modify the patient's environmental situation in such a way as to reduce anxiety and tension.

The task of the busy physician who treats patients who have functional symptoms is to reach the root of the difficulty and to work out an effective plan of treatment in the time he can afford to devote to a single patient. Sometimes this is easy. A woman plagued by fear that she has cancer may be completely relieved by simple assurance after careful palpation of the breasts or examination of the cervix uteri. More often the problem is not so simple, and at times it may be difficult indeed.

### THE WORD "FUNCTIONAL"

Unfortunately no single word or term has been generally accepted to designate the kind of disorder under discussion. The symptoms have been described many times. Anxiety, irritability, inability to relax, morning fatigue, mental conflicts, difficulty in making decisions, and symptoms specifically related to dysfunction of various organ systems, particularly the gastrointestinal or cardiovascular systems, are common. Patients with these complaints have been classified as being either in a state of tension or in a state of fatigue. Other authors have

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V 14
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used the terms benign nervousness, anxiety state, chronic nervous exhaustion, psychoneurosis, tension state, and "relatives of the insane." None of these terms seems entirely satisfactory.

It has been pointed out that all patients who have symptoms of "nervousness" may exhibit concomitant physiological dysfunction of many organ systems, including the cardiovascular, gastrointestinal, respiratory, genitourinary, and endocrine. Inasmuch as these are all related to a disturbance in the function of the patient as a whole, the term "functional" may be used to describe these disorders. It is in this sense that we use the word.

## CAUSE OF FUNCTIONAL DISORDERS

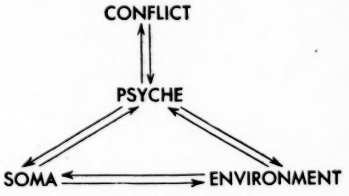
It may be stated simply that in a person who does not make a healthy adjustment to psychological conflict symptoms of functional disorders eventually develop. Conversely, a patient with a functional disorder always has a psychological conflict at the root of his troubles. In simple terms, a psychological conflict may be said to exist whenever a situation is different from that which the patient would like. Conflicts may be on a conscious level, within the awareness of the patient, or they may be totally unconscious and not recognized by the patient's conscious mind. In either case the patient may not be aware of any connection between the psychological conflicts and the symptoms of which he complains.

Physical symptoms associated with these psychological or emotional disturbances are of two major types. There are the physiological concomitants of emotional dysfunction, such as tension, fatigue, tachycardia, tension headaches, disturbances of gastrointestinal motility, and so on. With these symptoms the patient remains tense and anxious. A second group of symptoms are termed hysterical and are usually accompanied by some relief of anxiety. These symptoms include such things as paralysis, blindness, aphonia, cutaneous anesthesia, and the hysterical type of pain which may be localized to any area of the body. These symptoms that inhibit anxiety should be differentiated from similar symptoms or pains localized to specific areas of the body which are accompanied by anxiety.

The conflicts which cause functional disorders are always psychological, that is, within the psyche. It is useful for purposes of management to distinguish between conflicts in which the principle source of stress is predominately intrinsic or intrapsychic and those in which it is extrinsic or extrapsychic. Extrinsic sources of stress may be found in the interrelationships between the psyche and the soma, between the psyche and the social environment, or between the soma and the social environment. The chart illustrates this point.

In conflicts where the sources of stress are primarily intrinsic, the disturbance is usually deep and may reflect poor emotional adjustment in infancy, childhood, or adolescence. Persons in whom such situations exist often give a history of unhappy and disturbed childhood, long standing neurotic disturbances, frequent nervous breakdowns, multiple marriages, and other evidences of inadequate social and psychological adjustment. Occasionally symptoms are ascribable to a more recent and superficial intrapsychic disturbance, for example, anxiety or guilt relating to some unconfessed crime or misdeed. The symptoms of intrinsic conflicts are usually more pronounced when the patient is alone and unoccupied. If the symptoms are of long duration and extend back to childhood, the disturbance is usually deep and intractable. If the symptoms are more recent, the conflict may be more superficial and lend itself to direct treatment.

Symptoms resulting from conflicts with extrinsic sources of stress are usually of more recent onset and are correlated in time of onset with the development of the conflict situation. They are more pronounced when the patient is in contact with the source of stress and tend to subside when he is alone and unoccupied. Fear of disease, real or imaginary, may cause functional symptoms, and derives from a disturbed relationship between the psyche and the soma. Marital problems, financial worry, and dissatisfaction with work or occupation exemplify disturbances of the interrelationship between the psyche and the social or environmental situation. The somatic environmental relationship may be disturbed in a patient who has been injured and fears that he will no longer be able to hold a job and earn a living. Often, as might be suspected, a single problem may involve psychological conflict with both intrinsic and extrinsic sources of stress.




Extrinsic sources of stress.

The extrinsic sources of stress may be multiple. Logical management involves an evaluation of their respective roles.

Conflict situations are met by everyone every day. Normally a well-adjusted person resolves the conflict, avoids it, or makes some sort of healthy adjustment, and there are no symptoms. If the person fails to make a satisfactory adjustment and if his tolerance for stress is exceeded, functional symptoms will occur. Because of his symptoms the patient does not feel well and logically assumes that something is wrong with him physically. He consults a physician and recounts his somatic complaints. Only rarely does he, of his own volition, tell the physician of his anxiety and emotional problems.

## RECOGNITION OF FUNCTIONAL DISORDERS

Diagnosis in patients with functional disorders requires identification of symptom complexes resulting from functional disorders and also from organic disease. The contribution of each to the total disability of the patient is estimated. The cause of the symptom complexes is sought. Physicians have long been taught to do this for organic disease. It is done also for functional disorders. Intelligent treatment is determined by an understanding of the cause of the difficulty. This applies equally to functional and to organic problems. Also, a diagnostic evaluation must include an estimation of the patient's ability to understand, resolve, or endure psychological

conflict, with its accompanying tension and stress. An accurate diagnosis in these patients may be difficult indeed. Most physicians can recall patients whose troubles were considered "imaginary" but who turned out to have organic disease and others who had undergone extensive treatment for nonexistent "organic" disorders.

*Identification of Organic and Functional Disease.*—It has been said that if the physician will but sit and listen, almost every patient will give enough information to permit the correct diagnosis to be made or at least suspected. Good listening is particularly important for the physician who deals with functional problems. Symptoms are sought which suggest familiar complexes and syndromes. As the story progresses, questions are asked which are designed to complete a recognized pattern, functional or organic.

There is a group of symptoms which often result from long standing and unremitting emotional tension and strain. These are fatigue, "tired all the time," headaches, nervousness, exhaustion, and insomnia. The presence of one or more of these symptoms should alert the physician to the possibility that part of the problem is functional.

Other important symptoms are so-called anxiety symptoms. These conveniently may be thought of as manifestations of activity of the sympathetic nervous system. Many symptoms in this group occur together and may be said to constitute a sort of symptom complex. "Anxiety" symptoms are dizziness, "light headedness," nervousness, tremor, rapid heart rate, palpitation, numbness in the fingers and toes, difficulty getting a deep breath, "butterflies" in the stomach, occasional nausea and vomiting, constipation, diarrhea, and frequency of urination.

Finally, any unusual symptom or complaint may be the manifestation of a functional disorder. Hysterical symptoms belong in this group. Apparent anxiety and concern is usually diminished or even absent in hysterical patients. If an unusual symptom is present, which is accompanied by an unusually great amount of anxiety, there is often a special reason for the patient having the particular symptom. For instance, a person whose father died of angina pectoris may have an organically sound heart, yet have classical symptoms of angina pectoris as a manifestation of functional disorder. Situations of this sort may be extremely difficult to unravel. If the causative anxiety is overlooked, the patient's belief may be supported by his physician, with resulting additional disability.

*Differentiation of "Organic" and "Functional" Symptoms.*—Certain points may be used to differentiate a symptom of organic disease from a manifestation of a functional disturbance:

1. Of particular importance is the timing of its onset. Was the onset coincident with an emotional disturbance, or was there trauma, exposure to infection, or other cause?

2. It is useful to determine under what circumstances the symptom is intensified or relieved. Is the course that of a recognized organic condition or not? If the symptoms do not fit the pattern of any organic disease which comes to mind, a functional disturbance may be suspected. Such a suspicion is substantiated if the onset and exacerbations and remissions can be correlated with emotionally disturbing events in the life of the patient. Such correlations are important and necessary if the symptoms are to be established as functional.

3. Supporting symptoms and signs must be considered. Do the ancillary complaints of the patient round out an organic or functional symptom complex?

4. It is valuable to note whether the patient has a normal emotional reaction to his symptoms. Either undue concern or an unusually apathetic attitude toward the complaint should suggest to the physician that he may be dealing with a functional problem.

5. An often helpful point is to determine whether this symptom awakens the patient at night. Functional symptoms seldom awaken a patient at night.

While taking a routine system review, the physician may conveniently round out the symptom complex. Particular attention is given to any symptom that does not seem to fit. It may be a clue to the correct diagnosis. For instance, a patient complaining of nervousness, easy fatigability, palpitations, weakness, and loss of weight may be suspected of having a functional disorder. This impression is strengthened if a history of emotional disturbance at the time of onset of symptoms is elicited. If, however, it is discovered that a patient's caloric intake was excessively high during this period of illness, this symptom will lead a physician to a correct diagnosis of mild hyperthyroidism.

*Localization of Conflict.*—If a functional disorder is suspected, a search must be conducted throughout the rest of the routine medical history to try to localize the causative conflict. Its nature and characteristics are important for planning effective and logical treatment.

How is a conflict located? Basically, evidence of tension, nervousness, or an unusual emotional response is sought. The routine medical history, including past history, family, marital, social, and occupational history, provides a framework for conducting the search.

*Clinical Differentiation of "Intrinsic" and "Extrinsic" Stress Producing Situations.*—Conflicts resulting from intrinsic or intrapsychic stress producing situations are identified primarily by their long duration, together with the timing of exacerbations and remissions of symptoms. In these instances symptoms often extend back to childhood or adolescence. There is often a long history of functional disability, punctuated by exacerbations of symptoms or by nervous breakdowns at times when the emotional load was increased. Unsatisfactory adjustment is often evidenced by multiple marriages, unstable work records, and so on. Such patients may have difficulty in getting to sleep, may sleep poorly and have nightmares. They are often fatigued and exhausted on arising in the morning. The symptoms improve when the person is occupied with some activity. These conflicts are usually deep, fixed, and of long duration, although they may occasionally be recent and superficial. Also, it is well to remember that extrinsic stress producing factors often accentuate the symptoms of a basically intrinsic disorder.

Extrinsic sources of stress or extrapsychic precipitating factors are frequent. The physician can help most of the patients in whom these are present. Thus, it is important to try to localize the extrinsic or extrapsychic

precipitating factors. These vary with the psychological, medical, sexual, religious, cultural, and economic background of the patient and his society. They differ in the rich and poor, the married and single, the young and old, the farmer, the factory worker, and the business executive. The physician is familiar with the background of his patient. Bearing these factors in mind and suspecting the presence of a functional disorder, he considers various applicable conflict situations while completing the medical history. Some of the common conflict situations are fear of disease, sexual and marital problems, conflicts with parents or "in-laws," financial difficulties, dissatisfaction with work or occupation, economic or social implications of physical disability, and religious conflicts.

*Objective Signs of Tension.*—Taking the family, marital, and social history provides an easy excuse for the physician to touch on potentially sensitive areas without arousing the antagonism of the patient. Objective signs of tension, such as a deep sigh, a blush, an involuntary clenching of the hands, or even the flicking of an eyelid, may indicate an emotional response. If these signs are noted, while the family history is being taken when reference is being made to the patient's mother, there is evidence of emotional tension in connection with the mother. It may signify fear resulting from the fact that the patient's mother died with similar symptoms, or it may mean that the mother is interfering in some way with the patient's life. It may be useful at this point to ask, "what sort of person is your mother, anyway?" A delay of an instant in answering, or perhaps an evasive answer, is evidence of emotional tension in this area. An unusually emotional response to any question is noteworthy. One patient, when asked a routine question about sexual adjustment, drew herself up defensively and emphatically stated, "I don't have any troubles with my sex life, Doctor." The physician may withdraw from this disturbing subject, but he is in possession of the information that all is not well with the patient's sexual adjustment. Such observations, made while scanning the probable or possible areas of mental conflict, provide the physician with much localizing information.

*Subconscious Slips.*—Surprisingly often, a patient makes a subconscious slip or an apparently unnecessary statement which gives important help in localizing a source of stress. It usually comes at an unexpected moment and is easily missed by the physician. One woman accidentally blurted, "My husband is no good," and then spent the next two or three minutes explaining how much he loved her and how good he was to her in every way. Another woman who was consulting many physicians, all of whom were trying to get at the root of her obscure complaints of disabling disease, suddenly exclaimed with a big smile, "You know, I get a big kick out of having all these doctors fussing over me." Another patient exclaimed repeatedly how she "adored" having her mother live with her and gave the impression that she must convince the physician also that this arrangement was satisfactory. Such clues, and they are surprisingly frequent, may give specific signs of the hidden and repressed emotional difficulty.

*Some Important Questions.*—If the physician is to be sure he is not overlooking the patient's real difficulty, several questions should be answered. He must know exactly why the patient came to see him when he did. This is especially important when symptoms of long duration are present. The patient may have come because he knew someone with similar symptoms who recently died. If the physician knows this, and knows what the friend died of, he is then in a strong position to handle the problem. It is always wise to determine what disease the patient thinks he has. It is important to know this, first, because he may well have it, and, second, if he believes that he does, his anxiety cannot be relieved until he is convinced otherwise. It is often useful to ask the patient if he knows anyone else with similar symptoms. Sometimes this question will reveal the cause of the patient's anxiety. Usually it is well to ask the patient what he is afraid he might have. It is surprising how often this simple question will reveal a fear of cancer, high blood pressure, heart trouble, ulcer, syphilis, or insanity. Many patients will quite frankly reveal their fears when asked this question.

*Emotional Release During Initial Interview.*—Occasionally during the course of the interview, the patient will pour out his troubles to the physician with great relief of symptoms. The relief is most pronounced if an emotional release takes place. The patient in this way shares his trouble with someone else and is relieved of a part of the burden. This is not particularly frequent, however, and at times the physician will be faced with the problem of whether to try to get his patient to pour out his troubles. It has been well said that one must be careful not to remove the lid from the boiling caldron of the patient's emotions unless it can be got back on again. Probing into deep and complicated intrinsic psychological conflicts should be avoided by the general physician, unless he possesses adequate psychiatric training. The physician suspecting a problem involving guilt or shame may lose rapport with the patient by urging him to reveal himself, especially on the first visit. It has been established that the relationship between a male physician and a patient often falls into the psychological pattern of the relationship between the patient and his father. If the patient has a feeling of hostility or resentment toward his father, this attitude may be easily transferred to his physician. Often a situation of this kind may be detected by observation of the patient's emotional response to a mention of his father as the history is taken. If hostility toward the father figure exists, the male physician must be particularly careful not to antagonize the patient at the outset. In such cases a slow and careful approach is more productive in the long run.

If, however, the conflict is more superficial, particularly if there are obvious extrinsic precipitating factors, the physician may decide to try to get his patient to pour out his troubles. To accomplish this he may use an approach such as: "You seem to be the sort of person who gets upset easily. What sort of things upset you?" Or, more gently, "Is there anything you have noticed that really gets under your skin?" Such questions are often productive. If the localization of the conflict is suspected, the physician may say something like, "Whenever you speak of your mother, you seem nervous. What sort of person is your mother?" Or, "Your symptoms seem to be worse when you are working or soon after you get home. Is there something that gets under your skin at

the office?" In these instances positive and evasive answers are both significant.

When the area of the conflict is obscure, the patient may be told that, at times, symptoms such as his may be due to tension or stress, and he may be asked whether he is aware of any particular stress or strain or tension. Sometimes the patient will then discuss his emotional problems, perhaps with the statement that he does not see how this could possibly be causing his symptoms. Occasionally the physician may take advantage of what has been termed organ language. A patient may be nauseated because he "cannot stomach this or that." He may be asked if there is something that he has to put up with which he just cannot stomach. Similarly, a patient who complains of heaviness in his chest may have "something on his chest." Such techniques, in some instances, will provide the physician with the information he seeks.

In this way, then, while taking the history the physician is able to form some opinion (1) as to whether the primary difficulty is organic or functional and (2) if functional, whether the principal sources of stress are intrinsic or extrinsic. If they are extrinsic, he may gain some knowledge of the localization of some of the precipitating factors. Later, if the results of the complete physical examination and indicated laboratory procedures do not dispel the diagnostic impression, the physician sets the stage for treatment. Preparation for therapy, the technique of logical treatment based on the diagnostic evaluation and necessary follow-up, and prevention of recurrences will be the subject of another paper.

SUMMARY

The patient who comes to a physician is usually worried. Often the cause is obvious, and the anxiety is easily allayed. A large group of patients, however, do not have an obvious cause for their anxiety. These persons complain of nervousness, fatigue, tension, headaches, and a variety of nervous and somatic symptoms. It is with this large group that this paper is concerned.

No single word or term has been generally accepted to designate the group of patients who are the subject of this discussion. It has been pointed out that all patients who have symptoms of nervousness have a disturbance of function as a whole. We have chosen to adhere to the term "functional" to describe this group of patients and their disorders.

Functional disorders are caused by psychological conflict. The sources of stress may be predominately intrinsic, that is, within the psyche itself, or they may be predominately extrinsic, that is, in the relationship between the mind and body, the mind and environment, or the body and environment.

The task of the physician is to determine in the time available how much of the patient's symptoms and disability is due to organic disease and how much is due to functional disorder. If a functional disorder is thought to be present, it is necessary to gain some idea of the underlying conflict situation.

The usual medical history, physical examination, and laboratory investigation may be used to detect the presence of functional disorders as well as organic disease. In the initial interview functional disorders should be considered equally with organic disease as a possible cause of the patient's symptoms and disability. Some symptom complexes of functional disorders have been discussed and outlined, together with the practical methods of distinction between the symptom of a functional disorder and the symptom of organic disease.

If a functional disorder is suspected, the physician should attempt to localize the underlying conflict situation. This is necessary for logical treatment. Simple techniques for identifying the probable conflict situation during the course of the routine medical history have been described.

909 Hyde St. (Dr. Watts).

# SECRETARY OF THE BOARD

## APOLOGIA PRO VITA SUA

*Francis J. Braceland, M.D., Hartford, Conn.*
*and*
*David A. Boyd, M.D., Rochester, Minn.*

When Gilbert and Sullivan, those astute observers of human foibles, wrote melodiously in "The Pirates of Penzance or The Slave of Duty":

> Ah, when constabulary duty's to be done (to be done)
> A policeman's lot is not a happy one

they might easily have substituted "secretarial duties" for constabulary duty and particularly have had in mind the secretaries of specialty boards—this even in face of the fact that their position in the social scale is well below that of constables. A cross between servant and whipping boy, a board secretary might be compared in status with an umpire, except that he has much longer hours and gets no pay. If a team wins or a candidate passes his examination, it is because they are good or are well prepared and coached. If they lose or fail, *ipso facto* it is someone else's fault, and, in the case of board examinations, the board's fault, and, because he signs the paper, the secretary's fault. Thus in a relatively short time an obscure, peace loving physician becomes on a national scale what public officials sometimes call one another.

The board, and henceforth by this term we shall refer to the American Board of Psychiatry and Neurology, Inc., is praised occasionally, criticized sometimes, and

From the Institute of Living (Dr. Braceland) and the Mayo Clinic (Dr. Boyd).

Read at the meeting of the Southern Psychiatric Association, Pinehurst, N. C., Dec. 10, 1951.

misunderstood frequently. To attempt to justify its existence or that of any of the medical boards would require a long, involved discussion and would not be appropriate here. Suffice it to say that if there were no "boards" something else would have had to be invented in place of them, for it is doubtful that present standards of specialty training could have been attained without the existence of standardizing and examining bodies. The purpose of this paper is not to defend the principles and philosophies that underlie the operations of boards in general, but rather to describe for the reader the situation as the secretaries see it. The attitude with which we undertake this discussion is one of respect and real affection for our colleagues, both those who give and those who take "the boards."

By way of introductory apologia several questions should first be discussed and dismissed, for the board is sometimes held responsible for things that are beyond its purview, alien to its philosophy, and outside its field of influence. In fact, the board is even more distressed about these things and protests them more frequently and more vehemently than do its critics, but with a corresponding lack of success. An example is the refusal of hospital privileges to capable practitioners of neurology and psychiatry because they do not hold board certificates as diplomates. This, in our opinion, is an unfair restriction, a form of unhealthy trade unionism, and a substitution of guild restriction for professional competence. The board objects strongly to this practice and will have none of it; but hospital administrators state blandly that local conditions frequently make it impossible for their lay boards of trustees to decide opposing professional claims and competence, and, as long as certification exists, they will use it as a convenient measuring rod, and thus the onus is passed on to the board. To explain to a physician who is unable to acquire or retain a position on a staff that this policy was neither originated nor approved of by the board is usually not a pleasant, easy, or successful task.

The utilization of certification to determine salary or job status is an equally unfortunate policy that is frowned on by the board, which has always refused to lend itself to such actions. Yet there are still some who are unconvinced that the board was not conceived and organized for the malign purpose of preventing them from receiving a 25% pay increase or a promotion. Patient and careful statements couched in conciliatory terms by the secretary are frequently unheeded by both victim and hospital alike, and the existence, usefulness, and value of the board are called into question, though it had nothing to do with the establishment of such policies.

Some states stipulate as a prerequisite for employment that the applicant must be a "diplomate or be eligible for examination." In this manner the board is unwittingly dragooned into the business of personnel screening. Applications for examination are received by the secretary, accepted in good faith, and the arduous task of investigation of the applicant's specialized medical training, experience, professional competence, and ethical standards is carried out. The applicant is found to be eligible and is invited to appear for examination, and then he blithely writes that he never intended to be examined but only wished a statement of eligibility in order to secure a position in a state with this requirement. It is exasperating to learn that all this secretarial effort has been expended only for the purpose of job screening. By the same token, it is equally disturbing for an applicant to be denied an opportunity to work in a state because he is not "board eligible."

Physicians in general are not prone to suffer in silence. And who is the recipient of the firm and unequivocal statement of their feelings in these matters? The secretary of the board! This is due to the very human quality of reducing difficult problems to a person. It is not easy to wrestle with a "board," because of its fog-like quality of fragmenting and reassembling in different places and shapes. But the secretary is a different matter. Here is solid human flesh that remains in one place. Thus the secretary, not only as the mechanism of communication but as tangible evidence of the existence of the board, becomes the focal point in the turmoil. His function is to convey rulings, which are not always the desired ones, and to attempt explanation of situations as described above, and, needless to say, his communications are frequently unpopular.

As an example of the ire that may be directed at the secretary, let us consider the matter of certification on record, or the so-called Grandfather Clause. In earlier days it was possible to be certified on one's professional record, if certain requirements were met. It was determined that this policy would be discontinued Jan. 1, 1947, and that all further certification would be achieved only by successful examination. This decision was publicized for one full year and announced at all national meetings, in order to provide every opportunity for the dilatory to apply. Almost five years after the deadline applications are still received for certification on record, and no amount of tactful explanation can convince an applicant that he must stand examination. Instead, some of the applicants insist hotly that they have intended to apply ever since 1935 but never had the time, and, furthermore, ask us to send the certificate along by return mail without any more nonsense.

Additional repercussions of similar nature continued for years over a semantic question. When a diplomate achieves certification in one specialty, he may, by presentation of evidence of training and subsequent successful examination, achieve certification in the other field. The second examination and certification was called "complementary certification," because it completed his full certification in both neurology and psychiatry. Each published list of new certifications included those who had received such complementary certification. After the appearance of each list the secretary could expect a deluge of irate letters demanding to know why the board "complimented" those physicians with such certification while the writers were not "complimented" in the same friendly fashion. The secretary labored over long letters pointing out the different connotations of the words "complement," meaning complete, and "compliment," meaning courteous flattery. The years of phraseologic struggle took their toll, however, and, rather than face an eternity of long letters and labored explanations, we took the cowardly course. We changed the name to "supplemen-

tary certification," although this was not so satisfactory a designation but merely one less likely to cause trouble.

Contrary to general opinion, the preparation of applicants' credentials does not begin shortly before examination. Often the initial steps are taken during internship, when a prospective trainee writes to the secretary indicating his desire to undertake training primarily designed to make him a competent neurologist or psychiatrist or both and, incidentally, to fulfill board requirements at the same time. Often he wishes to have a program laid out in detail, even to the selection of the best training programs. To comply with his request would expose the secretary to the charge of favoritism, individual narrowness of approach, and undue domination and restriction of the broad sweep of individualized psychiatric training; furthermore, he would be suspected of an urge to standardize and mechanize the specialties. The secretary repeats the traditional board statement that there is no known best way to become a neurologist or psychiatrist and that it is recommended that the applicant follow his own bent and ideals, with board certification as a distinctly secondary goal. The secretary humbly refers inquirers to their own professors, to published lists of approved programs, to broad outlines of training programs, and to the American Medical Association Residency Information Service, with the result that the secretary is charged with being vague, indefinite, and unwilling to point out the one and only true way.

During the applicant's years of preparatory training the secretary is bombarded with letters requesting an unofficial evaluation of status. No matter how often it is emphasized that the physician's individual ideals of practice are the primary goal, applicants still write—sometimes it seems almost daily—to confer about changes in programs. Although the regulations are broad and inclusive, physicians still ask such questions as whether a year at a certain institution would be advisable and whether they should take certain courses. In spite of a prevalent belief that the board lives to regulate, the secretary constantly reiterates that the only sensible course to pursue is to prepare to be the best possible physician within the limits of one's ability and opportunities. Too frequently the return mail brings: "Thank you for your advice. Do you think I had better take a year at X?" And then we go over the whole problem again. There is no place for a short-tempered secretary, and, as the unfortunate incumbent of the office looks with exasperation at baskets full of letters, he must always remember that to each of these anxious correspondents his plans are a matter of crucial importance.

Meanwhile, formal applications arrive at the executive offices at the rate of 500 to 600 per year. Each one must be checked for completeness, and then all pertinent data extracted, typed, and forwarded to the American Medical Association for verification of claims of education, graduation, internship, professional and specialized training. The American Medical Association returns a check list, which is then compared with the candidate's claims. Simultaneously, reference forms are sent out to the sponsors whose names have been supplied by the candidate and to five other specialists in the field who are likely to have known the applicant during training or his years of practice.

An interesting commentary on the care with which physicians read board mail that they are about to sign is provided by the answers to the reference slips frequently received. The blue slips are for the references the candidate gives; the yellow ones are secret, and their issuance is unknown to the candidate. Although it is plainly printed on the yellow slips "this request is unknown to the candidate," often the addressee irately writes: "I cannot understand why this man ever gave my name as a reference." Sometimes they even telephone the candidate to tell him about this secret inquiry. The replies on these reference forms are often individual chapters in themselves. From one who has bitterly protested and has conducted a running internecine correspondence with the secretary about the board's insistence on his own personal fulfilment of requirements, we learn of our new applicant, "He is a good, competent, and ethical practitioner. Would suggest careful investigation, however, to learn if he has fulfilled all requirements." The same mail may contain such a reference and also a letter from the same informant suggesting that the requirements be modified, however, in the case of Dr. A, who, while he has not had the necessary basic training, is nevertheless an unusually fine and bright fellow. The sponsor knows the latter to be true because the applicant has been a close friend of his for several years.

By and large, however, physicians are honest and sincere, even with regard to their competitors. Often we hear, "I cannot stand him personally, but he is a well-trained, competent man." Since it is well known that the informant's confidence is never betrayed, the references are usually candid, even those of the sponsors whose names were supplied by applicants. Backbiting rarely if ever occurs, and, when it does, it is in minor issues, for almost all physicians rise above their own petty resentments in such important matters as certification. One instance was amusing, in that the references were so poor that more than 15 inquiries were sent out. Each reply was worse than the one preceding. By accident we finally struck on the applicant's analyst, and one could almost hear his gulp as he offered the dubious praise, "After two years of almost daily contact, I can honestly state that I am convinced that he is better now than he used to be."

Sometimes these inquiries inspire a vigorous chiding of the secretary: "I am sure that he has not had the required training, and I feel that you have been remiss in your investigations," and so forth. These are always answered, indicating the time and place of training and with a statement that the authenticity of such claims has been carefully checked. Almost always we receive an answer, both grudging and friendly, "I did not know Dr. M. had had that training. Anyway I am glad that you fellows are not asleep on the job." The friendly candor of the references is well demonstrated by one informant who said, "Please do not let Dr. Q take the examination now. He is not ready for it, and he will fail. He will then have to be as paranoid, defensive, and bitter as I was for years after taking and failing the examination because I was not ready." It was not easy, after such sincere assistance, to write to the informant and tell him that "on the record" Dr. Q had fulfilled the requirements and henceforth was the captain of his own destiny. For the mathematically minded it is interesting to note that with 600

applications per year and 8 inquiries per applicant, 4,800 pieces of mail are sent from and returned to this office, exclusive of all additional correspondence.

After the applications have been processed, passed on by the credentials committee, and the candidates notified, the actual task of setting up the examination is undertaken. The facilities of a large metropolitan center must be secured to supply adequate space and clinical material. For a large examination as many as 100 separate examining rooms are needed for basic and clinical psychiatry alone, plus an abundance of neurological material in addition, and it must be kept in mind that patients cannot tolerate repetitious neurological examinations. The board thus becomes deeply indebted and humbly grateful to those hospitals in which it has been a troublesome guest, because specialty neurological and psychiatric examinations completely disrupt hospital functions for a week or more. For the usual 300 candidates it is necessary to provide approximately 1,800 examining hours in two days, with care exercised so that no two assignments will be in conflict. It is also necessary to provide a rest period between examinations whenever possible. All this requires the assistance of about 110 examiners, who generously give up their practice and labor for the princely sum of $10 per day.

Next the schedule must be dovetailed, so that each candidate is at the right place at the right hour and the right examiner is there to meet him at the time allotted. To avoid unnecessary waste and expense, such a schedule must be "airtight," and, therefore, there is little margin for error. However, at the last moment key examiners become ill, their wives go into labor, hospital investigations are instituted, railroad men strike, trains are late, airplanes are grounded, ad infinitum. It is then that the secretary becomes anxious and almost desperate.

Finally the examination gets under way. Candidates arrive in panic, and the secretary's first duty is to have a period of group psychotherapy. Ostensibly, this is a period of instruction on examination procedures, but really it is a "cooling off" period in order to permit the candidates to gain composure. Now the secretary begins his attempts at reassurance, usually by the simple method of pointing out that if the secretary could finally pass the examination, it is well within the capacity of any candidate. Then, however, his troubles really begin. Candidates forget to appear at the correct examining section, and frantic efforts then must be made to find a free period in an already tight schedule. Others have gone to the wrong hospital; or the taxicab driver has become lost, the candidate rushes in two hours late, and the schedule is torn apart again. One candidate arrived at the examination two hours late and was completely mystified about his tardiness. After frantic rescheduling, which permitted no further modification, he was missed at the next examination period. After a search of the grounds he was found reclining under a tree and, when questioned, explained in an astonished manner that he must have forgotten to set his watch ahead as he came across the country.

Individual psychotherapy must be undertaken with anxiety ridden candidates, discouraged ones reassured, baggage watched for late comers, and directions supplied regarding the nearest drugstore, soft drink stand, telephone, coffee counter, and bathroom. Even more active medical first aid has been necessary for candidates who have fainted, and especially for one who revived his flagging courage too vigorously at a nearby bar. The latter wrote subsequently and indignantly demanded certification in those subjects that he had passed successfully before he became ill.

The secretary simultaneously acts as a runner between examining sections, collector and organizer of examination grades, and carrier of incoming messages. It is not unusual for him to search for half an hour for a candidate to deliver a telegram that almost invariably turns out to read, "Good luck to you, Joe, in your examination" and is signed "Mom." In the meantime, in some locations, preparations are under way with a caterer to serve luncheon to approximately 300 candidates and examiners, and this necessitates arrangements for the sale and collection of meal tickets.

At the end of each day of examination, the individual grades are presented to the board, and each candidate is carefully discussed and evaluated. The final notification form is prepared and mailed after midnight of the final day of examination. As the last notification is placed in the mailbox, the secretary usually collapses. As a matter of fact, after each examination one of us regularly took to his bed with exhaustion and acute upper respiratory tract infection.

There remains then only the matter of preparing diplomas and their mailing, preparation of lists of successful candidates for the journals and directories, explanations to indignant but unsuccessful candidates that they really did fail the examination and, no, they were not confused with someone of similar name, and then immediately beginning the plans and organization for the next examination. Accompanying the sigh of relief as the examination ends is the gloomy realization that in a few months the whole thing must be done again.

Among the many duties of the secretary is the formidable task of answering the assorted inquiries, which rival in scope and topic the "letters to the editor." For example, almost every mail includes a letter from an aspiring high school student: "I am writing a theme for my class in social studies. Please send all information on how to become a psychiatrist, the salary, education required, and the kind of work they do. P. S. My theme is due Thursday." Or, "Here are my dues for the American Psychiatric Association." We receive completed Federal questionnaires or even applications for jobs. Why these are sent to us is one of the world's greatest mysteries. Even more difficult to answer are the inquiries with the distinct paranoid odor: "My wife is being treated by Dr. X. Please send immediately all information about his training and professional standing." Or, "My son was in the state hospital for eight years with dementia precox. I removed him because he was not improving and put him under the care of Dr. Y. He recommends blank treatment. What do you recommend? P. S. Is he a good psychiatrist?"

It is not easy to remain tactful, imperturbable, and still answer such letters in a noncommittal manner. Those with forensic aspects are still more explosive. Attorneys have attempted to learn if a physician had failed in ex-

amination so that his testimony might be attacked, and we have received reams of testimony for comment. One paranoid hypomanic patient even sent a printed brochure of the court testimony in his suit against a psychiatrist for having placed him in a psychiatric hospital, suggesting that we take independent action against the physician and requesting advice for further legal action. Some of the requests are of such magnitude as to necessitate a week's secretarial work—for instance, "Please send me the names and addresses of all diplomates in Chicago and Los Angeles. I may be going to either town in the near future."

Some require nothing short of a miraculous divination: "We have an opening for a diplomate in neurology and psychiatry who can also do psychoanalysis. The salary for a man with proper qualifications is $5,000 per year. Please send the names of half a dozen men who would be interested." The letters most likely to disturb the secretary are those that scold him for matters in which he has no jurisdiction or control: "Why are you not actively promoting psychiatric fellowships for physicians who speak Sanskrit? Are you anti-Sanskrit?" Or "My listing in the directory (which is published by a private printing house) is wrong. This is a serious matter to me and must be corrected at once, before I consult my attorney. I am at a loss to understand why your office does not exercise more care in these matters."

The secretary's job is not all bad, however, and frequently he is rewarded by a letter from a physician who really displays understanding. In our tenure of office we are glad to say we have only received three vitriolic and unfair letters. Our policy with these is to wait a while and then return them to the sender. They were written in heat and anger, and we know the candidates would not want them in their records. Also, we have been privileged to see a much better-equipped group of candidates come before the board as the training programs have taken hold. The men are avid, anxious, and under pressure, and the watchwords of the board are kindness, understanding, and patient but careful, thorough examination. Punitive action or harshness with candidates is not tolerated, and the men are treated as colleagues and fellow practitioners. The hope of the board is that the men will pass—they have met the standards, and, if it is justifiable, they are passed.

Scrupulous fairness is the policy used in grading the candidates at the board meeting at night, and often the discussion on individual men lasts a long time, since every facet of his examination and preparation is considered. We feel, as did the distinguished John Whitehorn, who, on leaving the board after having thrice been president, stated that his contact with the men who compose the board renewed his faith in human nature.

There remain other tasks within the province of the secretaryship. The functions of the board are primarily medical, and a close relationship is maintained with the Council on Medical Education and Hospitals of the American Medical Association, and there is active participation in the Advisory Board for Medical Specialties. Through these groups the American Board of Psychiatry and Neurology, Inc., remains in close contact with other specialty boards and with American medicine in general. This includes the investigation and maintenance of standards in training programs and the preparation of long lists of hospitals in which approved training may be secured.

At this point in our jeremiad the reader must be wondering why anyone of average intelligence would involve himself in such a Laocoönian struggle. It cannot be on the basis of financial reward, because none of the directors receives a stipend. Some have implied the acceptance of the secretaryship is associated with a queer and as yet little known type of masochism. A different view was expressed by one applicant who requested and received a copy of the standard regulations and wrote in reply, "Dear Secretary: You are power mad!" If only he realized that our feelings at the end of each day are rivaled only by those of a clay duck in a shooting gallery that has safely completed another trip on his revolving, endless track!

What then is the motivation or at least the rationalization of all those, and particularly the harassed secretary, who are assigned the task of examining their colleagues? It is a belief that this is their contribution to the maintenance and elevation of standards of training and practice in their specialty and in medicine in general. Tremendous changes in training standards and professional preparation have occurred since 1934. As witness, in 1935 THE JOURNAL listed 16 training programs for neurology and 95 for neuropsychiatry. The Sept. 29, 1951, issue lists 79 for neurology and 243 for psychiatry. Since inception of the board in 1934, a total of 4,106 physicians have achieved certification in the specialties of psychiatry or neurology or both.

In the intervening time, extensive educational programs have been formulated and instituted, amalgamation of training facilities has been effected to supply all facets of experience, and courses have been charted that provide the trainee with some semblance of a plan of preparation. These are probably not the very best plans and certainly not the only ones, but now the tyro at least has certain guideposts. Secretaries are not as naïve as the flea on the chariot axle, who, on looking back, said proudly and compacently, "Lo, what a dust I have raised." The secretary knows that he has had the honor of serving a group that has made great efforts to raise standards in his particular specialty. In the expansion and improvement that has taken place a myriad of factors have played important roles, and among these we know that the American Board of Psychiatry and Neurology, Inc., has contributed its important part. In the light of these facts, it is well worth the worry, gloom, and travail that is now and always must be the destiny of the secretary of the board.

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**Tolerance.**—Make it a rule never to be angry at anything a sick man says or does to you. Sickness often adds to the natural irritability of the temper. We are, therefore, to bear the reproaches of our patients with meekness and silence. It is folly to resent injuries at any time, but it is cowardice to resent an injury from a sick man, since, from his weakness and dependence upon us, he is unable to contend with us upon equal terms. —Benjamin Rush, M.D., Medical Inquiries and Observations, ed. 3, Philadelphia, 1809. Reprinted in *American Journal of Medicine*, November, 1951.

# WEST FRANKFORT COAL MINE DISASTER

*John E. Summers, M.D., West Frankfort, Ill.*

At approximately 7:33 p. m., C. S. T., Dec. 21, 1951, an explosion occurred in the Orient no. 2 coal mine, owned by the Chicago, Wilmington & Franklin Coal Corporation, killing 119 men and hospitalizing 5 others. This was the worst mine disaster in the United States since 1928 and the second deadliest occurring in the Illinois coal mines. The worst coal mine disaster recorded occurred at Monongah, W. Va. in 1907, when 361 men were killed.

## THE MINE

The Orient no. 2 coal mine is located 3 miles northwest of West Frankfort, Ill., and 70 miles southeast of St. Louis. The mine was opened 29 years ago and is the largest shaft coal mine in the world, with a daily output of 9,500 tons of coal. It holds a world record for coal mined during an eight hour shift, 15,152 tons. The mine covers an area of 12 square miles and is approximately 550 ft. below the surface. There are four shafts, two of which are used for mining operations. The other two shafts provide ventilation and contain stairs that are used for emergency exits. The main shaft is known as no. 4.

## EXPLOSION

Coal mine explosions are due to the ignition of methane gas and/or of the coal dust in the air of the tunnels. This explosion occurred in the north part of the mine and was not felt in other parts of the mine or on the surface. The force of the blast is demonstrated by an 8 ton piece of machinery that was knocked off its rails. Heavy steel rails were torn from their tracks and twisted in various forms. Supporting timbers were knocked down and cave-ins were precipitated. It is estimated that about 15 men were working in the immediate area of the explosion. The bodies of these men were mutilated so that identification was very difficult. Old operative scars, teeth and dentures, and finger printing were resorted to to identify the bodies.

When the concentration of methane and oxygen reaches combustible proportions, a spark or flames ignite the methane, resulting in an explosion of tremendous force. When fine particles of coal dust are in the air, a coal dust explosion is then propagated. Carbon monoxide is produced by the combustion of methane.

The U. S. Bureau of Mines inspectors have listed the conditions responsible for the explosion [1]:

1. An inadequate ventilating system in which air that ventilates the working sections of the mine first passes open approaches to abandoned and caving areas which contain explosive gas. No provision had been made at the time of the disaster to keep abandoned areas free from accumulations of explosive gas.

2. The operation of nonpermissible electrical equipment which is capable of igniting gas.

3. The presence of large accumulations of fine coal dust of an explosive nature created by mining operations. This coal dust, principally along roadways, was not removed from the mine or rendered inert by the application of sufficient rock dust.

Injuries result from: (1) the blast force, (2) the flash-fire, (3) carbon monoxide poisoning, and (4) falling timbers, rocks, and machinery.

It is unfortunate that more accurate studies into the causes of death from the explosion were not made. It is probable that a large percentage of the victims succumbed to carbon monoxide poisoning. The rapidity of diffusion of carbon monoxide after the explosion is evidenced by the dead birds found lying on the floor of the no. 4 shaft elevator a few minutes after the explosion, which occurred about two miles away.

## RESCUE OPERATIONS

A few minutes after the explosion dense black smoke was seen billowing from shaft no. 4. The coal company surgeons, Drs. A. F. Barnett and C. H. Williams, were called to the shaft and helped to organize the rescue operations. Trained rescue workers were summoned. Over 500 men took part in this task, which lasted for three days. Twenty rescue teams, each consisting of six men, worked in relays. The advance rescue men wore asbestos fire fighting clothing and gas masks equipped with oxygen tanks, in addition to the regulation helmeted lamps and battery strapped around the waist. All electric current in the mine was shut off. The bodies of the victims were carried on stretchers, with head lamps providing the only illumination. Those miners considered dead were left while the rescuers pushed ahead to reach those who might be alive. As the victims were located from two to four miles from the shaft, the rescue was hampered, not only by gas, cave-ins, and obstructing timbers and machinery, but also by the long distances over which the stretcher bearers had to walk.

*Major Mine Disasters in Illinois*

| Place | Date | No. Killed |
|---|---|---|
| Braidwood | Feb. 16, 1883 | 69 |
| Zeigler | April 13, 1905 | 49 |
| Zeigler | Jan. 10, 1909 | 26 |
| Cherry | Nov. 13, 1909 | 259 |
| Royalton | Oct. 27, 1914 | 52 |
| Royalton | Sept. 28, 1918 | 21 |
| Johnston City | Jan. 25, 1924 | 33 |
| West Frankfort | Jan. 9, 1928 | 21 |
| Moweaqua | Dec. 23, 1932 | 54 |
| Centralia | March 25, 1947 | 111 |
| West Frankfort | July 24, 1947 | 27 |

The few survivors, after being brought to the surface, were given oxygen and brought to the hospital. Numerous rescue workers required treatment at the mine, and three were hospitalized for short periods. The dead were carried to a temporary morgue located in the gymnasium of the West Frankfort Central Elementary School. Aid to the rescue workers at the mine, the morgue, and elsewhere was systematically and efficiently rendered by the Salvation Army and the local Red Cross.

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Chief Surgeon, U. M. W. of A. Union Hospital.

Drs. Owen H. Taylor and Charles E. Ahlm assisted in the emergency care of the hospitalized patients.

1. Final Report on Major Explosion Disaster, Orient No. 2 Mine, Chicago, Wilmington & Franklin Coal Company, West Frankfort, Franklin County, Illinois, United States Department of the Interior, Bureau of Mines, Region 8, 1951.

### PREPARATIONS AT HOSPITAL FOR WOUNDED

As soon as the report of the explosion had been made public, the hospital authorities began preparations to receive an unknown number of seriously injured men. All patients in the hospital who were able to be moved were forewarned of that possibility. Requests for blood plasma were sent out to outlying hospitals, and technicians were called in from surrounding towns to assist in necessary laboratory work and blood typing. Additional oxygen therapy apparatus was secured, and blood donors were called for. Twenty-five pints of blood, type O and A, were rapidly collected. In emergencies we have been quite successful in using type O blood, to which has been added blood group specific substances A and B.

### REPORT OF CASES

CASE 1.—At approximately 8:30 p. m., Dec. 21, 1951, the first patient, a white man, 53, was brought to the hospital. His main complaints were nausea, vomiting, and headache. He had

Fig. 1.—Coal company surgeons (left background) watch as rescuers bring one of the survivors from the shaft of the mine.

been working in the periphery of the explosion area and was suffering from carbon monoxide poisoning. This man's job served as a "nerve center" for the explosion area, since he kept in constant contact with all parts of the mine by means of telephone. The first knowledge of the explosion occurred at 7:33 p. m., C. S. T., Dec. 21, 1951, when the patient experienced a sensation as if someone had suddenly clapped both hands over his ears. Shortly thereafter he felt a terrific wind, described as "a tornado" coming from the tunnel. He attempted, with another miner, to shut the steel safety doors leading to the mine shaft but was unable to do so because the doors had been blocked open with various mine equipment. He then rushed toward the mine shaft to escape and lost consciousness as he fell near the elevator. He was pulled onto the elevator and was brought to the surface by two other coal miners. Prior to losing consciousness he noted that there were dead birds lying on the elevator floor. These birds had been roosting above the elevator shaft in the warm air and had been overcome by the carbon monoxide fumes. Physical findings were essentially normal, except that the patient's skin and mucous membranes appeared pinker than normal. During his hospital stay he complained of nausea, vomiting, headaches, and nervousness, but he improved rapidly and was discharged at 10 a. m. on Dec. 24, 1951. Daily follow-up studies revealed continual improvement, but the patient still complained of attacks of nausea and vomiting, usually coming on in the afternoon. He also complained of inability to sleep at night.

CASE 2.—A white man, 33, was admitted to the hospital at 10:30 p. m., Dec. 21, 1951. He was admitted in a semicomatose condition and was unable to give any satisfactory history. He had previously been treated in the hospital in 1950, at which time a vagotomy had been performed for a chronic, intractable, duodenal ulcer. This operation had been successful, as measured by follow-up studies and roentgenograms that had been last reported as showing a normal intestinal tract. On examination the patient moaned and responded to painful stimuli. He was covered with smoke and coal dust, so that his features were not at first recognizable. There were first and second degree burns of the hands, upper extremities, neck, face, and scalp. The eyelids were reddened, and the conjunctivas were markedly inflamed and swollen. The temperature was 99 F, the blood pressure 130/70, the respiration rate 24, and the pulse rate 90. The rest of the physical findings were essentially normal. There was no evidence of pulmonary congestion at this time. The patient was very thirsty and moaned for water repeatedly. Water was given to him, and there was no vomiting. He was placed in an oxygen tent. Plasma, and later, whole blood was given intravenously. The initial dose of ¼ grain (15 mg.) of morphine was not adequate, and a second dose was required. Subsequently meperidine

Fig. 2.—A survivor, taken out of the mine shortly after the explosion, being carried to a waiting ambulance by trained rescuers wearing 40 lb. (18.1 kg.) oxygen breathing apparatus with the battery strapped around the waist.

(demerol®) hydrochloride was used instead of morphine. Antibiotics and tetanus antitoxin were administered. Frequent determinations of the pulse, respirations, and blood pressure were recorded. Laboratory studies on Dec. 22, 1951, showed the red blood cell count to be 5,360,000, the hemoglobin 14.05 gm., and the white blood cell count 11,500. Urinalysis was normal with a specific gravity of 1.020. Blood determination for carbon monoxide saturation was taken at 2 p. m. on Dec. 24, 1951, and was reported as showing a 40% to 50% blood saturation. Carbon monoxide saturation on Dec. 26, 1951, was reported as being less than 5%. He began to clear mentally on Dec. 24, 1951, and was able to answer questions on Dec. 25, 1951. At this time he had no recollection of the explosion. The last thing that he remembered was that he had been working down in the coal mine. At the present time the patient is much improved.

CASE 3.—A white coal miner, 47, was admitted at 1:40 a. m., Dec. 22, 1951. The patient was unconscious and appeared to be desperately ill. The skin was cold and cyanotic. The head was rigidly held in hyperextension. The eyeballs were fixed and directed upward and to the right. Generalized clonic convulsions occurred intermittently, and the jaws were held tightly together. The blood pressure was 90/60, the pulse rate 100, the respirations 30 per minute and stertorous. There were no external evidences of injury. He was placed in an oxygen tent, and 2 pt. (1,000 cc.) of plasma and 3 pt. (1,500 cc.) of whole blood were administered before the patient had recovered from the initial shock. Broncho-

scopic examination was done initially, and large amounts of blood-tinged fluid were obtained from the trachea and bronchi. Repeated laryngoscopic examinations and direct tracheal aspirations were required because of the continued accumulation of fluid in the trachea. These operations were somewhat hampered owing to the spasm of the jaw muscles. There was a short period of improvement in the vital signs, but the patient remained comatosed throughout. Portable chest roentgenograms were taken on the afternoon of Dec. 22, 1951, and showed patchy consolidation throughout both lung fields. Pulsus alternans was noted, and rapid digitalization by parenteral administration was performed. Fluids (5% dextrose in water) were given intravenously, and all the urinary output was collected through an indwelling urinary bladder catheter. Antibiotics were administered in large doses. The urine output for the first 24 hours was 1,200 cc.; for the next 24 hours, the urine output was 955 cc. Owing to the necessity for repeated tracheal aspirations to remove the fluid from the trachea and bronchi, a tracheotomy was performed at 2 p. m. on Dec. 23, 1951. The patient continued to experience cyanotic attacks of progressive severity, the pulsus alternans continued, and respiratory arrest occurred at 8 p. m. on Dec. 23, 1951. Stimulants and artificial respiration were administered but were of no avail. The heart continued to beat for approximately 8 minutes after the respirations ceased. Laboratory studies on Dec. 22, 1951, showed the red blood cell count to be 5,200,000, the hemoglobin 15.05 gm., and the white blood cell count 17,000. Urinalysis findings were essentially normal; the specific gravity was not determined at this time. Permission for autopsy was refused by the family.

While no blood determinations for carbon monoxide saturation were performed, it is believed that this patient died from carbon monoxide poisoning. After the initial shock it was noted that the skin and mucous membranes appeared much redder than normal, and the venous blood was cherry red. The clinical signs indicated severe damage had occurred to the central nervous system.

CASE 4.—A white man, 54, was admitted at 1:40 a. m., Dec. 22, 1951. This coal miner had been working with the patient in case 3. Examination showed that he was disoriented and restless. He, like the others, was blackened with coal and smoke. There was a short laceration of the skin in the left frontal region. Superficial burns were noted on the left side of the face and about the left ear. The lids were reddened, and the conjuctivas were edematous and congested. There were no other external evidences of injury of any significance. The mucous membranes appeared redder than normal. The blood pressure was 140/80, the pulse rate 90, and the respirations 26 per minute. The patient was placed in an oxygen tent. Whole blood transfusions were started. An indwelling catheter was placed in the urinary bladder. Antibiotics and tetanus antitoxin were administered. Fluids were given intravenously. The urinary output of 1,000 cc. per day was maintained. The patient was very restless and nauseated but was able to cough up abundant mucus from the trachea. He remained confused, unable to answer questions. He had no recollection as to time, place, or persons, until Dec. 25, 1951, when he appeared to recognize certain members of his family. On Dec. 26, 1951, he began to ask questions but still had loss of memory for present and recent happenings. He continued to improve slowly, mentally, but has no recollection of the explosion. Laboratory studies on Dec. 22, 1951, showed the red blood cell count to be 4,960,000, the hemoglobin 15.05 gm., and the white blood cell count 18,700. Urinalysis findings were normal, with a specific gravity of 1.003. On Dec. 24, 1951, the red blood cell count was 5,310,000, the white blood cell count 12,300, and the hemoglobin 14.05 gm. Urinalysis showed a specific gravity of 1.017, 1+ for albumin, 5 to 7 white blood cells, and 15 to 25 red blood cells. Blood taken at 2 p. m., Dec. 24, 1951, was reported as showing a 40% to 50% carbon monoxide saturation. Blood taken on Dec. 26, 1951, was reported as showing a carbon monoxide saturation of less than 5%. At the present time the patient is greatly improved, and his memory for past and recent events is practically restored.

CASE 5.—A white coal miner, 44, was admitted on Dec. 24, 1951, at 6:45 a. m. When the rescuing party found this coal miner, they had removed 106 dead bodies from the coal mine, and all hope for any survivors had long vanished. This coal miner had been working with nine others in the periphery of the blast area at the time of the explosion. The blast had knocked the men down, but they had recovered and had attempted to escape from the gas (carbon monoxide) that followed the explosion. Their exit to the mine shaft had been cut off by the carbon monoxide, and they attempted to secure themselves a place in the rocks, as high as possible, away from the approaching gas. They erected a barricade (called a brattice) consisting of burlap cloths, which was supposed to divert the gas from the place of refuge; however, the gas seeped in, and shortly thereafter the victims were overcome. The lone survivor of this group of 10 men was rescued 57½ hours after the explosion. Prior to losing consciousness he wrote a short note on the back of a cough drop box (the use of various types of cough drops is very prevalent among miners). The note read, "May the good Lord bless and keep you, dear wife and kids. Will meet you in heaven. Your husband and dad, Cecil." [2] The patient was conscious when the rescuers reached him, and he has remained so. Examination revealed no evidence of external injury except for two small contusions in the right lumbar region. He complained of being very weak and thirsty. He was placed in an oxygen tent. Fluids were given, orally and intravenously, and whole blood administered. On admission the temperature was 99 F, the pulse rate 80, the respiration rate 22, and the blood pressure 100/60. The skin was abnormally pink, as were the mucous membranes. At 6:30 a. m., Dec. 25, 1951, the blood pressure fell to 80/50 with no other change in the vital signs. At this time the patient also complained of a headache. Blood transfusions were administered, and improvement resulted. During the first 24 hours of hopitalization, the patient was able to drink water and requested coffee on Dec. 25, 1951. Thereafter he was able to take food by mouth. The temperature rose to 101 F on Dec. 25, 1951, and to 102.6 F on Dec. 26, 1951. Large amounts of antibiotics had been administered since admission. On Dec. 27, 1951, the temperature reached a maximum of 101 F, and the patient complained of pain in the right lower chest region. The temperature has returned to normal, and the chest signs of pneumonitis in the right lower lobe have subsided. Progress is excellent at the present time. Laboratory studies on Dec. 24, 1951 showed the red blood cell count to be 5,000,000, the white blood cell count 9,050, and the hemoglobin 16.45 gm. Urinalysis findings were essentially normal, with a specific gravity of 1.016. All urine was collected through an indwelling catheter for the first two days of hospitalization. Blood taken on Dec. 24, 1951, at 2 p. m. for carbon monoxide determination showed a saturation of less than 3%. Blood taken for carbon monoxide determination on Dec. 26, 1951, showed no carbon monoxide in the blood.

This patient apparently suffered carbon monoxide poisoning, dehydration, and starvation. After the carbon monoxide was liberated by the oxygen therapy and the dehydration was corrected, he improved rapidly. He had one episode indicative of beginning vascular collapse after admission, and pneumonitis, which has responded to treatment, also developed in the right lower lung. At the present time his condition is improved, and full recovery is expected. He still complains of severe headaches, nervousness, and inability to sleep.

## SUMMARY

At 7:33 p. m., C. S. T., Dec. 21, 1951, an explosion occurred in the coal mine Orient no. 2, in West Frankfort, Ill., killing 119 men. The deaths were due to (1) the blast force, (2) carbon monoxide poisoning, (3) the flash-fire, and (4) falling objects. It is recommended that should another such disaster occur, pathologists be called and autopsies performed in order to ascertain the causes of death. The determination of carbon monoxide saturation of the blood would be extremely helpful. It is my opinion that a larger percentage of the men were killed by carbon monoxide poisoning than is generally known.

2. Dr. R. M. Johnson went down into the mine to assist in this patient's rescue.

# POLLEN PREVALENCE AND POLLEN-FREE AREAS

*Oren C. Durham, North Chicago, Ill.*

The essential objective in atmospheric pollen research is to learn how much of what kinds of allergenic pollen are likely to be inhaled by sensitized persons at any time and in any locality. This objective may be amplified in further detail as follows: (1) to assist in the clinical evaluation, locally and generally, of known allergenic pollens, (2) to discover, identify, and help to evaluate new allergenic pollens, (3) to clarify the role of meteorologic, topographic, and other local factors affecting pollen prevalence and pollen dispersal, and (4) to find areas where, as a result of natural advantages or control measures, or both, the air is relatively or entirely free from pollens of particular species. Obviously, air analysis furnishes an excellent yardstick by which to judge the antiallergenic value of weed eradication campaigns and to test the truth of advertised claims for pollen-free vacation resorts.

At present all routine sampling of air-borne allergens is done by the gravity method, in which all pollen grains and other atmospheric debris are allowed to fall on a petrolatum (vaseline®) coated slide for a period of 24 hours. The pollens found on a unit area (1 sq. cm.) of the slide are then identified and those of each species or allergenically related group counted separately. Finally, the resulting square centimeter figures for each kind of pollen may be converted to approximate cubic yard equivalents by factors which have been worked out by extensive laboratory and outdoor experiments. The present standard technic includes the use of a special exposure device and the choice of the place of exposure—usually the top of a tall building in the business section of the city. This technic, as recommended in 1945 by the Pollen Survey Committee of the Council on Aeroallergens of the American Academy of Allergy,[1] has met with the wide acceptance by allergists, aerobiologists, and public health officials throughout the United States, Canada, and foreign countries. Current statistics are being reported to the Pollen Survey Committee each year from nearly 200 communities (see typical report of monthly pollen totals for Washington, D. C., for 1950, Table 1).

## RAGWEED POLLEN

The clinical usefulness of daily ragweed pollen records is emphasized by the Chicago figures for 1949 and 1950 (Fig. 1). For nine consecutive days during late August and early September, 1949, the ragweed pollen concentration remained at a very high level—400 to 500 pollen grains per cubic yard of air. If, during that period, the results in treatment of local cases of hay fever were not perfect, everyone could be sure of the explanation. In 1950 it was just as important to know why pollen treatment and supplementary medication during the same part of the season seemed unusually effective. Instead of abnormally high concentrations as in 1949, the figures for the 1950 season fell to all-time low levels, not only for those same nine days but for the remainder of the season as well. In seeking an explanation for the shortage of wind-blown pollen after Aug. 26, 1950, it was first noted that the short and giant ragweed crops were as luxuriant as usual. But weather records showed that except for one day in four weeks the wind had blown continuously from the north sector. In Chicago cool north winds always retard pollen production or discourage pollen distribution, or both. It is pertinent to add that the three days of low concentration in early September, 1949, were also caused by north winds.

TABLE 1.—*Pollen Record for Washington, D. C., 1950**†*

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maple | 5 | 15 | 18 | 155 | 387 | 4 | ... | ... | ... | ... | 592 |
| Alder | 11 | 45 | 6 | ... | ... | ... | ... | ... | ... | ... | 62 |
| Elm | 3 | 51 | 440 | 20 | 2 | ... | ... | ... | ... | ... | 516 |
| Juniper | 8 | 17 | 63 | 5 | ... | ... | ... | ... | ... | ... | 93 |
| Birch | .. | 2 | 12 | 142 | 224 | 6 | ... | ... | ... | ... | 386 |
| Sycamore | .. | ... | 3 | 95 | 265 | 21 | ... | ... | ... | ... | 384 |
| Poplar | .. | ... | 6 | 27 | ... | ... | ... | ... | ... | ... | 33 |
| Oak | .. | ... | 2 | 175 | 960 | 7 | ... | ... | ... | ... | 1,144 |
| Willow | .. | ... | ... | 40 | 2 | ... | ... | ... | ... | ... | 42 |
| Sweet gum | .. | ... | ... | 25 | 36 | ... | ... | ... | ... | ... | 61 |
| Ash | .. | ... | ... | 23 | 17 | ... | ... | ... | ... | ... | 40 |
| Beech | .. | ... | ... | 14 | 11 | ... | ... | ... | ... | ... | 25 |
| Linden | .. | ... | ... | 8 | 56 | 46 | 2 | ... | ... | ... | 112 |
| Red mulberry | .. | ... | ... | 84 | 153 | 90 | ... | ... | ... | ... | 327 |
| Paper mulberry | .. | ... | ... | ... | 57 | ... | ... | 3 | 3 | ... | 63 |
| Walnut | .. | ... | ... | ... | 3 | 3 | ... | ... | ... | ... | 6 |
| Hickory | .. | ... | ... | ... | 25 | ... | ... | ... | ... | ... | 25 |
| Tree of Heaven | .. | ... | ... | ... | ... | 124 | ... | ... | ... | ... | 124 |
| Grass | .. | ... | ... | 4 | 76 | 200 | 60 | 31 | 46 | 5 | 422 |
| Red sorrel | .. | ... | ... | ... | 122 | 92 | ... | ... | ... | ... | 214 |
| English plantain | .. | ... | ... | ... | 13 | 115 | 62 | 13 | 2 | ... | 205 |
| Goosefoot and amaranth | .. | ... | ... | ... | ... | ... | ... | 10 | 16 | ... | 26 |
| Composite | .. | ... | ... | ... | ... | 2 | 18 | 3 | 6 | 3 | 32 |
| Ragweed | .. | ... | ... | ... | ... | ... | ... | 354 | 1,122 | 14 | 1,490 |
| Miscellaneous | 38 | 20 | 52 | 164 | 134 | 58 | 38 | 14 | 12 | 3 | 533 |

* These figures indicate accumulated monthly and annual totals of daily average cubic yard content.
† Data from Dr. Eloise W. Kailin.

Data on the time of onset, apex, and termination of the ragweed season in many different localities are necessary in comparing the skin reactions and histories of pollen-sensitive persons who have resided in more than one area. Through extensive routine aerobiologic studies it has been shown, for example, that the ragweed hay fever season is appreciably later at Little Rock than at Winnipeg or Chicago, while at Houston the apex of pollination occurs more than a month later than in the North, and that the season is consistently longer in the South than in the North. In the southern half of Florida mild to moderate exposure is possible over a period of six months, due to pollen from a locally adapted strain of short ragweed which comes through the ground in the fall, grows all winter and reaches anthesis in May or June. In Arizona and southern California there are two distinct ragweed seasons each year—spring and fall—caused by two different types of false ragweed (Franseria).

Read in the Session on Allergy before the Section on Miscellaneous Topics at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

Chairman, Pollen Survey Committee, Council on Aeroallergens of the American Academy of Allergy; Chief Botanist, Abbott Laboratories; Assistant Professor, Lecturer in Allergy, Department of Medicine, College of Medicine, University of Illinois.

1. Durham, O. C., and others: Report of the National Pollen Survey Committee of the American Academy of Allergy on a Conversion Factor for Gravity Slide Counts, J. Allergy **18**: 284 (July) 1947.

V 14
1952

Ragweed pollen incidence on a continent-wide scale is shown on the map (Fig. 2), where the comparative areas of the 200 discs indicate the comparative accumulated totals of ragweed and sagebrush pollen caught on a square centimeter of slide area in each place in a whole season. More than 250 other communities have been studied and could have been plotted if there had been room on the map. In most of these the air testing has been carried on for several seasons, some for as long as 20 years, so the plotted data are average totals. In the area between the Rocky Mountains and the Eastern seaboard, the abundance of ragweed pollen is truly astonishing. The breadbasket of America, where almost every wheat field is also a ragweed field, is a veritable Pandora's pollen box. Here strong daytime thermal currents and unobstructed prevailing westerly winds sweep up and suspend uncounted tons of pollen in clouds of varying density, often reaching heights of more than a mile above ground. The map serves to locate the ragweed pollen-free areas, as well as the heavily contaminated zones. The pollen-free and nearly free areas are indicated by two easily recognized symbols. A list of all places [2] with excellent ragweed records is given in Table 2.

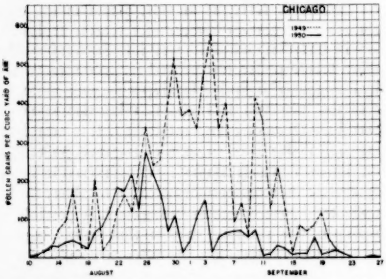


Fig. 1.—Ragweed pollen incidence in Chicago (data from Drs. T. B. Bernstein, William Grater, and T. B. Dannenberg).

Alaska, western British Columbia, western Washington and Oregon, as well as many parts of California, including all the national parks of the Pacific states, have excellent ragweed ratings, although limited local exposure is possible in most of the cultivated areas of central and southern California. These low figures of the West Coast do not mean that all ragweed sufferers of the middle states will be permanently cured of inhalant allergy by moving to the West Coast, for some of these middle-states sufferers are sensitized to other pollens than ragweed or have the capacity to pick up readily sensitivity to new types of pollen.

Conditions range from fair to very good in the higher parts of the Rocky Mountains and intermountain states, including the national parks of the region. Very little trouble has been experienced by ragweed-sensitive tourists at Yellowstone except when they tramp in the sagebrush. In most of western Canada ragweed pollen concentrations are light. Even at Winnipeg very little ragweed pollen appears on the test slides except when strong winds blow from the Red River Valley across the border along the Minnesota-North Dakota line.

The upper Michigan peninsula has the double advantage of heavy woods and a growing season which is too short and too cool for maximum ragweed development, but in many instances these advantages are offset by the prevailing westerly winds and the rhythmic recurrence of strong south winds carrying pollen from Minnesota, Wisconsin, and lower Michigan. In the populous districts of southern Ontario and Quebec ragweeds are abundant, so one must go to the mountainous regions adjacent to northern New Hampshire and Maine or beyond the city of Quebec into the Gaspé country to find a satisfactory degree of relief. Excellent coordinated atmospheric pollen studies are being carried on in Ontario, Quebec, and in all the maritime provinces.[3] While common ragweed is known to have invaded the Annapolis Valley of Nova Scotia, most of this province is probably still quite free of the weeds, as are New Brunswick, Prince Edward Island, and Newfoundland.

TABLE 2.—*Places with Perfect or Extremely Low Ragweed Records*

**United States and Alaska**

Alaska: Fairbanks, Juneau, Nome
Arizona: Phoenix, Grand Canyon National Park
California: El Centro, Escondido, Lassen Volcanic National Park, Los Angeles, Monterey, Oakland, Pasadena, Sacramento, San Diego, San Francisco, Sequoia National Park, Yosemite National Park
Colorado: Glenwood Springs, Mesa Verde National Park, Pikes Peak, Rocky Mountain National Park
Florida: Fort Myers, Key West, Miami Beach
Idaho: Moscow, Sun Valley
Maine: Houlton, Newagen, New Portland, Presque Isle, St. Francis
Montana: Glacier National Park, West Yellowstone
Nevada: Reno
New Hampshire: Colebrook, Errol, Lancaster, Moosilaukee
New York: Blue Mountain Lake, Keene Valley
Oregon: Portland, Crater Lake National Park
Utah: Bryce Canyon National Park, Zion National Park
Washington: Mt. Rainier National Park, Olympic National Park, Seattle
Wyoming: Grand Teton National Park, Yellowstone National Park

**Canada**

Manitoba: Russell, The Pas
New Brunswick: Bathurst, Fredericton
Newfoundland: St. John's
Nova Scotia: Cape Breton Highlands National Park, Ingonish Island
Prince Edward Island: Prince Edward Island National Park
Quebec: Chandler, Father Point, Gaspé, Grand Riviere, Iles-de-la-Madeleine, Matapedia, Mont-Albert Caspesie, Mont Joli
Saskatchewan: Prince Albert

**Cuba**

Havana

**Bermuda**

Hamilton

Pollen research has been carried on for a number of years during the fall season in about 50 cities and towns in the Catskill and Adirondack Mountains of New York by the State Department of Health.[4] Likewise, in the White Mountains of New Hampshire the State Department of Health has studied some 36 communities.[5] Throughout the state of Maine 25 test stations are serviced from the laboratories of the University of Maine.[6] Many fairly good ragweed refuges and a few very good

2. Durham, O. C., and others: Report of the Pollen Survey Committee, 1950, unpublished data.
3. Campagna, E.: Ragweed Pollen Survey in Quebec for 1949, read before the Third Meeting, Eastern Section, National Weed Committee, Jan. 30-31 and Feb. 1, 1950, Ottawa, Canada. Unpublished data.
4. Gilcreas, F. W.: Unpublished data.
5. Vintinner, F. J.: Ragweed Free Areas in New Hampshire, New Hampshire State Department of Health, Division of Industrial Hygiene, Concord, N. H., May, 1950.
6. Vickers, M. A.: Unpublished data.

ones have been discovered in the mountain parts of these three states, but constant care must be exercised in evaluating the annual records from these areas. Even though a community is once proved to be virtually pollen free, there is no guarantee that it will remain so. Careful spraying of roadsides by highway authorities, combined with organized ragweed destruction in a given community, is sometimes highly effective if the community is surrounded by plenty of wooded country. But when this insulation is insufficient or the vigilance of the state authorities or the citizens is relaxed, a good record of one season may often be followed by a very poor one.

Except at Miami Beach, the possibility of ragweed refuges in Florida has received comparatively little attention until the 1950 season, when the state board of health instituted a statewide survey.[7] Ragweeds flourish in the cultivated farm and orchard lands of northern and central Florida, as well as in the rich glade soil of the southern part of the state. But, fortunately, they cannot compete successfully with the native tropical vegetation. Where tilled soil is neglected, it produces ragweed for only one season, after which it is taken over by more vigorous plants. Large areas in southern Florida are given over completely to grasses or sedges. It will be seen from the map (Fig. 2) that, except for Sebring, all the better ragweed records are from points on or near the coast, even as far around the Gulf Coast as Pensacola.

On the subject of ragweed control, it is pertinent to remark that neither legislation nor community efforts directed toward this end in the central agricultural states can be taken seriously. To promise the effective suppression of air-borne ragweed polen in either a local community or a whole state in this part of the country is equally absurd.

### RAGWEED-RELATED SPECIES

The national aerial distribution of pollen of sagebrush (Artemisia tridentata) and other Artemisia species is shown on the same map with the ragweeds because most persons who are skin sensitive to ragweed are also equally skin sensitive to any or all of the sages, even in areas where the latter are absent. A glance at the map (Fig. 2) will show that in only a few places in the plateau states, Sun Valley, for example, do sagebrush pollen concentrations exceed those of the local ragweeds. Even then they show far lower levels than those of ragweed in most places in the central states, and far less than one would judge from observation of the thousands of square miles of sagebrush in the West. Sun Valley itself lies among the foothills covered with a pure stand of mountain sagebrush. Thus, sagebrush production proves to be far less per acre than ragweed—probably no more than one-tenth as much. The record for Nashville, Tenn., is unique. Here annual sage (Artemisia annua), a green, sweet-scented, fern-like weed, with little resemblance to its sagebrush relatives of the West, is unusually abundant. Its clinical evaluation is difficult because its season of pollination coincides with that of ragweed, and skin reactions to annual sage pollen, unaccompanied by ragweed reactions, are extremely rare. The season of anthesis of the sages differ with the species and locality, but most of them pollinate in the fall.

7. Florida State Board of Health: About Breezes and Sneezes, Florida Health Notes, Vol. 43, No. 2, February, 1951.

### GOOSEFOOTS AND AMARANTHS

The principal hay fever offenders in the goosefoot (chenopod) family are the tumbleweeds: Russian thistle (Salsola pestifer) and firebrush, or fireweed (Kochia scoparia), of the dry-farming areas of the Great Basin, sometimes referred to as the Dust Bowl. Russian thistle is also abundant locally throughout the Rocky Mountain region, while firebush is slowly extending its range eastward, particularly in the larger cities. The outstanding members of the amaranth family, as far as air pollution is concerned, are Palmer's amaranth (Amaranthus palmeri) of the Southwest and western water hemp (Acnida tamariscina) of the corn states.

Since the pollens of both goosefoots and amaranths are so similar in microscopic appearance and their antigenic qualities so nearly identical, they are frequently counted and reported (Fig. 3) as a group rather than by separate species. In the Southwest heavy local exposure to the pollen of Palmer's amaranth, or careless weed, is frequent in cultivated fields in the late fall, while Russian thistle is a very minor offender.

At Goodland, Kan., as in most places in the Great Basin area, the goosefoot-amaranth season begins definitely in early July and lasts well into September. Here Russian thistle pollen has proved far more active clinically than that of any other local species, even more than that of the local prairie ragweed, otherwise known as burweed marsh elder (Iva xanthifolia). It is most interesting that in this area, in spite of ragweed pollen concentration as high as is frequently encountered in Boston (Fig. 2), less than one case out of 25 of local hay fever is complicated by sensitiveness to ragweed. A possible explanation of this situation may be that prairie ragweed is not a ready sensitizer like the other ragweeds. The assumption is hardly tenable, however, since most ragweed-sensitive persons in areas where prairie ragweed does not exist will show marked skin reactions to its pollen—frequently as strong as to that of short and giant ragweeds. At any rate, there is plenty of evidence that Russian thistle pollen is a more active sensitizer than that of any species of ragweed.

Western water hemp pollen is as abundant as ragweed pollen at Wichita, Kan. (Fig. 3). It appears in appreciable percentages at Lincoln and Omaha and sometimes at St. Louis. Although western water hemp is a member of the amaranth family, its pollen is not nearly as allergenic as that of Palmer's amaranth. Pigweeds and lamb's quarters are common weeds of fields, gardens, and waste places throughout North America. While their pollens interreact with those of the other goosefoots and amaranths already discussed, their output is evidently too small for clinical consideration. Clinical symptoms traceable to these pollens are extremely rare or absent in the eastern half of the United States. Obviously, it is not difficult to find refuge from the goosefoots and amaranths.

Hemp (Cannabis sativa), popularly known as marijuana, is so common in the western half of Iowa and extreme eastern Nebraska, and its pollen is so abundant and allergenic, that it constitutes an outstanding example of an active pollen of strictly local distribution (distribution not shown on maps).

V 14
1952

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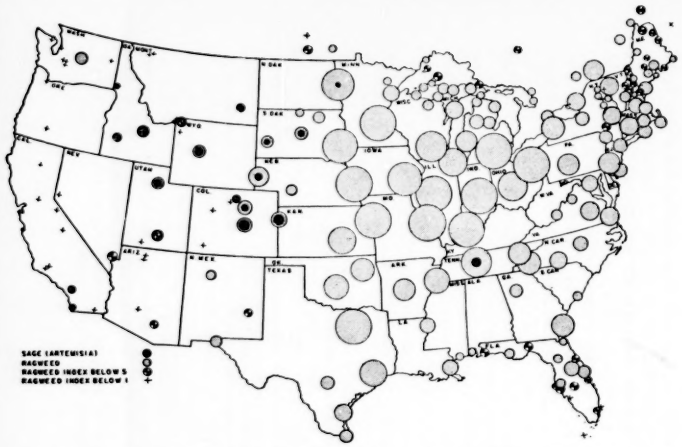


Fig. 2.—Typical ragweed and sage (Artemisia) pollen records. Area of discs denotes comparative total annual fall of pollen in each locality.

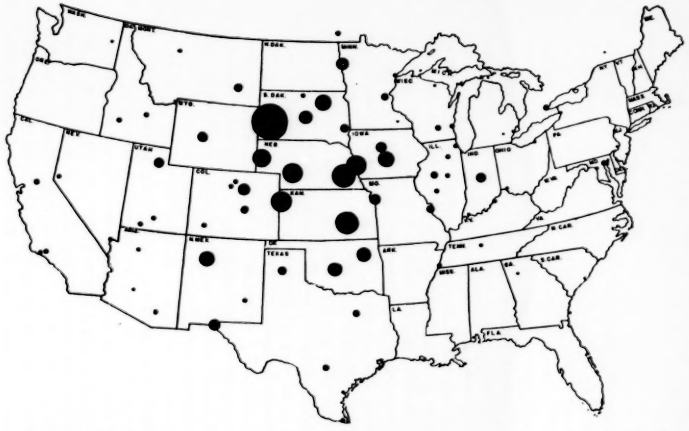

Fig. 3.—Typical records for all species of goosefoot (chenopodiaceae) and amaranth (Amaranthaceae) pollen. Area of discs denotes comparative total annual fall of pollen in each locality.

Fig. 4.—Typical grass pollen records. Area of discs denotes comparative total annual fall in each locality.

Fig. 5.—Typical tree pollen records. Area of discs denotes comparative total annual fall of all types of tree pollen. Proportions of six more important types are shown by comparative area of segments.

### GRASS POLLEN

The grass pollen map (Fig. 4) is an experiment—a risk as far as interpretation is concerned, not because the local records are less numerous but because the totals are surprisingly small as compared with the annual totals for ragweed. Perhaps this is explained by the fact that wild grasses shed very little pollen and by the comparatively small acreage of freely pollinating cultivated grasses. It is true that grass pollen grains are relatively heavy and are not as readily dispersed in the air as are the lighter pollens like ragweed. Oddly enough, it has been found that in the northern and northeastern states, where the grass pollen content of the air averages only about 10% of that of ragweed, the ratio of clinical cases of grass sensitiveness to ragweed cases is actually about 1 to 10.

Unfortunately, there is little opportunity for complete escape from grass pollen except by staying indoors with windows and doors closed or taking a sea voyage. Grasses grow luxuriantly even in high mountain valleys and are a menace in irrigated desert areas. The heavy rainfall in the Pacific Northwest is particularly conducive to the growth of the meadow grasses, as evidenced by the Seattle grass total (Fig. 4), which exceeds that of any community thus far reported. In the Pacific Northwest, the north central states, and the Atlantic seaboard from Massachusetts to Virginia, the active season runs from about the middle of May until the middle of July.

Year around pollination of Bermuda grass is encountered in the extreme Southwest. While Bermuda grass pollen is probably the most active clinically of any grass pollen, and one of the most troublesome pollens of Arizona and southern California, it is produced in relatively small amounts and ripens very close to the ground. While air tests often reveal an average of less than 2 grains of Bermuda grass pollen per cubic yard of air through the year, close contact with the grass on lawns and irrigated fields can cause severe symptoms in sensitized persons. Thus, wide differences in the time and length of season and in the relative prevalence of grass pollen (all species) in widely separated areas are emphasized by the atmospheric studies.

### TREE POLLENS

The tree pollens as a group are mostly an allergic headache to the physician. As a group, three pollens are much less toxic than those of the weeds and grasses already discussed. The pollens of all pines, firs, and spruces, of hemlock, mountain hemlock, and deodar cedar are so inactive that pollen researchers seldom take the trouble to record them, and most allergists omit them entirely from their test kits. Of the conifers, it seems that only the juniper pollens and those morphologically similar types, such as incense cedar (Libocedrus decurrens), are active. Even those broad-leaved trees which produce pollen in large amounts account for only very occasional severe sensitization. Moreover, in many localities the list of potential offenders is large—not only a long list of oak species but numerous unrelated genera, such as elms, maples, sycamore, ash, hickory—thus complicating skin testing for true hay fever occurring in late winter and early spring. Another difficulty is that the seasons of tree pollination are not very dependable. A given species may vary greatly in time and intensity of production from year to year with the changeable weather of early spring. Therefore, the tree pollen records shown in tabular form and in graphic form on the map (Fig. 5) are not to be regarded as necessarily typical.

The maximum variety and quantity of tree pollens in any reported annual study were found in the Washington, D. C., tabulation (Table 1). Here the annual catch of nearly 20 distinct tree pollens doubles the production of ragweed, and the season lasts twice as long. Yet comparatively few Washington residents suffer severely with pollen allergy while the trees are in bloom. The oaks around the capitol led all trees in production in 1950, while in 1949 paper mulberry pollen was more abundant than that of any other plant, including the ragweeds.

Elms furnish a good example of the great variation in time of anthesis in various places due to latitude and climate, as well as to differences of habit of native and imported species. In the Gulf states, American elm begins to bloom in early January; at Washington, D. C., in February; at Montreal and Portland, Ore., in April. Texas scrub elm (Ulmus crassifolia) and certain species of Chinese elm used in the Southwest shed their pollen in late summer and fall.

Junipers and related conifers are interesting sources of large amounts of very active allergenic pollen, beginning in December and continuing to early spring. Vast stretches of juniper woods are found in the thinly populated areas of the Southwest, but mountain cedar (Juniperus sabinoides) pollen is a menace throughout central Texas. Incense cedar, which flourishes in the Sierras, is a frequent sensitizer of winter residents and winter visitors at Yosemite National Park (see graphic data for San Antonio and El Paso, Texas; Albuquerque, N. Mex.; and Zion National Park in Fig. 5).

Much remains to be done in filling in the gaps in the tree pollen picture, particularly in the almost treeless Great Basin. More data are needed from all areas. Wax myrtle (Myrica cerifera), a native shrub of the middle and south Atlantic seaboard, sheds pollen abundantly, but because of the scarcity of pollen records during early spring along the Atlantic coast this pollen has been counted only at St. Simons Island, Ga. Its allergenic qualities have not been studied nor have those of bald cypress (Taxodium distichum).

Since it has been impossible within the limits of this paper to present more than a glimpse of the results of the extensive work of pollen researchers during a quarter of a century, requests for detailed summaries and for complete data, as available for any particular locality, will be answered as promptly as possible if directed to the Pollen Survey Committee of the American Academy of Allergy, Abbott Laboratories, North Chicago, Ill.

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**The Founder of Experimental Physiology.**—Galen was one of the most brilliant intellects applied to medicine, and he was the founder of experimental physiology and the greatest Greek physician after Hippocrates. His observations on the physiology of the central nervous system are probably the best example of his keen sense of observation. He was a versatile, many-sided man of talent and a skilled practitioner of his time, although he left no good account of his clinical cases. He had a roving disposition, as had many of the famous physicians of that period. After his death European medicine remained at a dead level for nearly fourteen centuries.—Donald C. Balfour, The Lister Epoch in Medicine, *Canadian Medical Association Journal*, November, 1951.

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# FUNCTIONAL OBSTRUCTION OF EFFERENT LOOP OF JEJUNUM FOLLOWING PARTIAL GASTRECTOMY

*Ross Golden, M.D., New York*

Subtotal or partial gastric resection is the routine for the majority of operable carcinomas of the stomach and, in the hands of some surgeons, is the operation of choice for intractable gastric or duodenal ulcer.[1] The operative mortality has steadily declined during the past two decades. Glenn and Harrison [2] reported one death in 100 consecutive cases of gastric resection for peptic ulcer in 1948. St. John and co-workers [1] noted a mortality of 4.6% in 394 cases of partial gastric resection for ulcer during the 10 years ending in 1945.

Along with operative mortality, the incidence of postoperative complications has diminished. This undoubtedly has resulted from better preparation of the patient for operation and better understanding of the pathological physiology resulting from the operative procedure.

One puzzling postoperative complication is an apparently functional obstruction of the efferent loop of jejunum. Repeated postoperative vomiting has been encountered in occasional patients for many years, but the association of this symptom with spasm of the efferent loop, demonstrable by x-ray examination, was not recognized in our radiological and surgical services until 1944.

In the majority of these cases convalescence is satisfactory for 8 to 12 days. Then, for no obvious reason, the patient begins to complain of epigastric fulness, particularly after eating, and nausea and vomiting. In a minority these symptoms may appear earlier or later. The symptoms are relieved by gastric evacuation by a tube but recur after a few hours. Continuous suction evacuation of the stomach by a nasogastric tube gives persistent relief but prevents the patient from getting nourishment. The use of intravenous solutions suffices to maintain the protein and electrolytes at satisfactory levels until the symptoms disappear. This usually occurs between 2 and 10 days after onset, but it may take longer.

## X-RAY EXAMINATION AFTER PARTIAL GASTRECTOMY

In this discussion the remaining proximal portion of the stomach will be referred to as the stomach pouch, the portion of jejunum into which the stoma opens will be called the stoma loop. The efferent loop of jejunum passes caudad away from the stomach pouch, and the afferent loop leads to the stomach pouch from loops proximal to the anastomosis.

The stomach pouch cannot produce peristaltic waves such as are seen normally in the lower half of the stomach. It must empty largely by gravity into the stoma loop and into the efferent loop of jejunum.

When distended with food, the stomach pouch expands much more on the greater curvature than on the lesser curvature side. The anastomosis on the greater curvature side lies lower than the lesser curvature; therefore, drainage of the stomach pouch is easier when the efferent loop of jejunum is connected to the greater curvature side of the anastomosis.

The radiological examination after partial gastrectomy should be done in the morning after the patient has fasted overnight, with the patient erect behind the fluoroscopic screen. When conditions are normal, no residual fluid is found in the stomach pouch, and the first swallow of barium passes immediately or after a momentary delay into the efferent loop of jejunum. The caliber of this efferent loop is the same as that of more

Fig. 1.—A normally functioning anastomosis of the Polya type with the efferent loop extending from the lesser curvature side of the stomach pouch. The efferent loop is the same average width as the more distal loops of jejunum.

distal loops of jejunum (fig. 1). As additional barium is given, a contraction may appear in the efferent loop that temporarily holds back the flow of opaque fluid. Usually, however, the stomach pouch will be practically empty after a few minutes in the erect position. In the horizontal position the emptying of the stomach pouch is slower. These remarks apply when the efferent loop leads away from the greater curvature side of the stomach pouch, as in the Hoffmeister type of anastomosis.

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Read before the Section on Radiology at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

From the Department of Radiology, College of Physicians and Surgeons, Columbia University, and the Radiological Service of the Presbyterian Hospital.

1. St. John, F. B.; Harvey, H. D.; Ferrer, J. M., and Sengstaken, R. W.: Results Following Subtotal Gastrectomy for Duodenal and Gastric Ulcer, Ann. Surg. **128**: 3-14 (July) 1948.

2. Glenn, F., and Harrison, C. S.: The Surgical Treatment of Peptic Ulcer, Ann. Surg. **132**: 36-48 (July) 1950.

If the Polya type of anastomosis has been done with the efferent loop leading from the lesser curvature side, the emptying of the stomach pouch is much slower. The first swallow of barium fills the stoma loop, which passes obliquely from the greater curvature side of the stoma upward and toward the right. The opaque material usually first passes a short distance downward and to the left into the afferent loop and is usually moved back upward toward the anastomosis by peristaltic contractions. Peristaltic movements in the stoma loop are required to expel the opaque material to the right and upward into the efferent loop. These movements are not so effective in the stoma loop as they are in the intact intestine, because the former opens through the anastomosis into the stomach pouch. With this arrangement, i. e., with the efferent loop extending to the right from the lesser curvature side, the stomach pouch empties more freely when the patient lies on the right side.

Fig. 2 (case 1).—*A*, spasm of the efferent loop (arrow). *B*, the same patient approximately 10 weeks after partial gastrectomy with the efferent loop (arrow) normal in width.

A man, 51, had a partial gastrectomy for duodenal ulcer. An antecolic Polya type anastomosis was done, with the efferent loop extending medially from the lesser curvature. Convalescence was satisfactory until the ninth postoperative day, when the patient began to vomit. X-ray examination on the 12th postoperative day disclosed an obstruction at the beginning of the efferent loop. After considerable delay a little barium passed through the very narrow efferent loop to the more distal loops of jejunum, which were normal in width. A 24 hour residue of barium was found in the stomach pouch. No vomiting occurred after the 14th postoperative day.

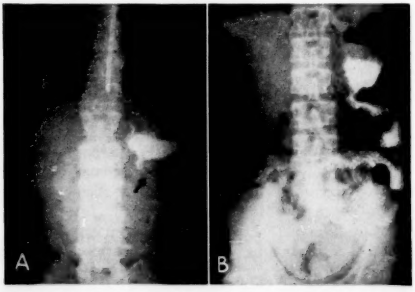


Fig. 3 (case 2).—*A*, spasm of the efferent loop (arrow). *B*, the same patient on the 39th postoperative day and 21 days after vomiting ceased. The efferent loop (arrow) has relaxed and is passing barium but is still only about half the width of the lower loops of jejunum. A nonopaque fluid level lies above the barium, a residue of overnight fasting fluid.

A man, 52, had a partial gastrectomy for a bleeding duodenal ulcer. A retrocolic Hoffmeister type anastomosis, with the efferent loop extending downward and to the patient's left, was done. Vomiting began on the seventh postoperative day. The roentgenogram in *A* was taken with the patient erect on the 14th postoperative day. Above the barium is a large amount of nonopaque retained fluid, at the top of which is a small amount of gas. Four days later, on the 18th postoperative day, vomiting ceased.

### POSTOPERATIVE SPASM OF EFFERENT LOOP

When symptoms consistent with unsatisfactory function of the anastomosis develop after partial gastrectomy, it is important to differentiate the syndrome under discussion from mechanical or paralytic ileus, in which distention of the small intestine distal to the efferent loop occurs. X-ray examination should be done, and the radiologist should be informed as to the type of anastomosis the patient has.

In this syndrome the stomach pouch usually contains a large amount of nonopaque fluid after the patient has fasted overnight. This fluid consists of gastric secretions and bile and pancreatic juice, which enter freely by the afferent loop but cannot be expelled caudad. The first swallow of barium passes along the lesser curvature into the stoma loop. It is held up not at the anastomosis itself but at the junction of the stoma loop and the efferent loop or in the efferent loop 2 to 3 in. (5 to 7.5 cm.) beyond the anastomosis. In some cases a little opaque material will pass through the efferent loop into more distal portions of the jejunum in a few minutes to several hours. In other cases the barium suspension is held in the stomach pouch indefinitely until it is vomited or is removed by suction through a tube. If a little barium passes through, the lumen of the efferent loop appears very narrow, one-fourth or less of the normal caliber (fig. 2*A* and 3*A*). This narrowing extends for several centimeters, beyond which the lumen becomes normal in width. The mucosal pattern in the narrowed zone may be either normal or somewhat irregular. Examination after the patient has fully recovered discloses prompt emptying, with the efferent loop normal in width (fig. 2*B* and 3*B*).

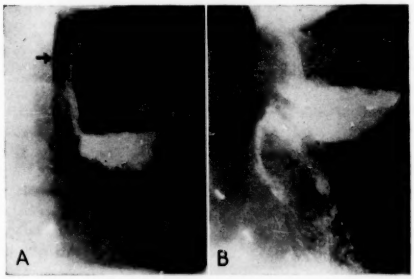


Fig. 4.—*A*, temporary obstruction of the efferent loop with an accumulation of overnight fasting fluid (arrow) above the barium, but without symptoms, in a man, 55, who had a retrocolic Hoffmeister anastomosis following partial gastrectomy for carcinoma of the stomach. This examination was done on the eighth postoperative day. *B*, narrowing of the efferent loop of jejunum (arrow) extending downward and to the left from the anastomosis. The spasm of the efferent loop partially relaxed after the third swallow of barium, two or three minutes after the roentgenogram shown in *A* was taken.

Four symptomless patients were examined in the erect position 7 to 10 days after partial gastrectomy. Three of them had considerable residual fluid in the stomach pouch after fasting overnight (fig. 4*A*), and one had no

fluid. All had moderate narrowing of the efferent loop of jejunum extending up to 6 or 7 cm. below the anastomosis (fig. 4*B*). This indicates that temporary, probably intermittent, delay in emptying the stomach pouch may occur without producing symptoms.

## COMMENT

Glenn and Harrison encountered 14 instances of "postoperative gastric retention" in 100 cases of gastric resection for ulcer during 1948. They describe the retention—presumably meaning the symptoms—as occurring from 1 to 14 days following operation in 11 of the 14 cases; in the other three cases the longest time was 30 days. Of the 100 cases discussed by these writers, the Polya type operation was used in 73, the Hoffmeister type in 20, and other methods in the remaining 7. All the 14 patients had the Polya type operation, either anterior or posterior.

St. John and co-workers reported a study of 394 cases of partial gastric resection for ulcer performed between 1936 and 1945 inclusive. They refer to 47 of these patients who had some postoperative symptom attributable to obstruction of the efferent loop, but they give no detailed information as to time of onset or duration. Most of their patients had the anterior Polya type operation. Toward the end of the decade the Hoffmeister type operation was used in the majority of cases. They have the impression that postoperative complications were less frequent after the retrocolic Hoffmeister operation than they were after the anterior Polya operation.

St. John and co-workers mention spasm of the afferent loop in two cases. I have not personally encountered a case in which spasm of the afferent loop was demonstrated by x-ray methods in association with these symptoms. In fact, when the syndrome under discussion was present, barium entered the afferent loop easily in the patients I have seen.

In the past a second operation was often done for persistent vomiting. Sometimes adhesions were found involving the efferent loop, and other times no visible abnormality was discovered to which the obstruction could be attributed. Freeing of the adhesions was assumed to be the reason for the disappearance of the symptoms some days after the second operation. However, in two cases I have personally investigated, the site of obstruction, shown by the barium examination, was proximal to the site of the adhesion. In one instance, after removal of the adherent omentum, a tube was pulled through the stomach pouch into the efferent loop at the second operation, for the purpose of injecting nutriment into the lower jejunum, but the narrowing of the efferent loop and the obstruction to swallowed barium persisted for at least four days. In cases in which nothing is found at the second operation, the symptoms disappear in about the same length of time. Of interest is the fact that the narrowing of the lumen, so obvious at the barium examination, is not seen by the surgeon at the time of the second operation. Furthermore, the time interval between the partial gastrectomy and the onset of symptoms is the same in cases with, as in those without, adhesions involving the efferent loop.

Inasmuch as the obstruction of the efferent loop is relieved spontaneously after a period of days, the difficulty is apparently produced by spasm or failure of the efferent loop to relax. It seems logical to assume that this obstruction is the result of a localized physiological disturbance in the intestinal wall resulting from the operation. For this a hypothetical explanation can be offered, based on two facts: 1. Part of the intramural nervous system consists of nerve fibers that are not connected with either the sympathetic or the parasympathetic system. These fibers connect physiologically one segment of intestine with another over a distance of several centimeters, and the normal direction of flow of any stimulus is caudad. 2. A mechanical stimulus of the wall of the intestine, as by pinching, causes a contraction. Does the mechanical stimulus of the incision and the sutures in the wall cause a contraction in the efferent loop? A similar phenomenon is seen in association with peritoneal adhesions involving the small intestine.[3] However, the time lag of several days between the operation and the onset of symptoms remains to be explained. Why, in the great majority of cases, does it take that length of time for the stimulus to produce sufficient spasm to cause symptoms of obstruction? Why does this phenomenon appear only in a small percentage of patients after partial gastrectomy, although the same or a similar mechanical stimulus is present in all? For these questions satisfactory answers do not seem to be immediately available. Possibly an accessory factor is present that makes the mechanical stimulus, present in all the cases, more effective in some. Barden, Ravdin, and Frazier [4] emphasized the importance of edema of the jejunal wall resulting from hypoproteinemia as a factor in retardation of emptying after gastroenterostomy. However, in more recent years care has been taken to maintain the blood protein well above the edema level during the postoperative period, and it seems unlikely that this is a factor in the spasm of the efferent loop. It is known that a loss of potassium follows any operation [5]; this is associated with edema and a disturbance in motor function of the small intestine, characterized by evidence of a mild paralytic ileus. No evidence is available that either of these conditions plays a part in the syndrome under discussion.

Whatever the mechanism may be, the obstructive spasm of the efferent loop appears to be a self-limited physiological disorder, provided the blood protein and electrolytes are maintained at normal levels by appropriate methods and the distention of the stomach pouch is relieved by suction evacuation.

## SUMMARY

A functional obstruction of the efferent loop of jejunum resulting from spasm occurs in a small percentage of cases after partial gastrectomy. The symptoms, epigastric fulness, nausea, and vomiting, begin in the great majority of cases during the second postoperative week.[6]

3. Golden, R.: Some Problems in Abnormal Intestinal Physiology Associated with Peritoneal Adhesions and Ileus Pancoast Lecture, Am. J. Roentgenol. **56**: 555-568 (Nov.) 1946.

4. Barden, R. P.; Ravdin, I. S., and Frazier, W. D.: Hypoproteinemia as a Factor in the Retardation of Gastric Emptying After Operations of Billroth I or II Types, Am. J. Roentgenol. **38**: 196-202 (July) 1937.

5. Randall, H. T.; Habif, D. V.; Lockwood, J. S., and Werner, S. C.: Potassium Deficiency in Surgical Patients, Surgery **26**: 341-363 (Sept.) 1949.

6. At the Presbyterian Hospital it has become the custom to call this "the nine day disorder."

They disappear spontaneously in a few days, in the majority, to two to three weeks, in the minority of cases. X-ray examination discloses spasm of the efferent loop of jejunum when the symptoms are present, with delay in emptying the stomach pouch. After the symptoms disappear, the caliber of the efferent loop is essentially normal. The spasm of the efferent loop is apparently due to a localized temporary disturbance in muscle function resulting from the necessary surgical trauma to the jejunum in making the anastomosis. This syndrome appears to develop less frequently after procedures requiring a shorter incision than in those requiring a longer one in the jejunal wall.

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# PULMONARY CHANGES IN UREMIA

*Hyman E. Bass, M.D., David Greenberg, M.D., Emanuel Singer, M.D.*
*and*
*Milton A. Miller, M.D., New York*

Alterations occurring in the lung associated with uremia have received attention only in recent years. A search of the literature reveals references to 34 cases. Ehrich and McIntosh, in 1932, studied the lung changes in three patients who died of Bright's disease.[1] Subsequent reports described the chest roentgenograms of the lung in patients with uremia.[2] The features of this condition were characteristically those of increased densities, confined predominantly to the hilar areas of the lungs in a bilateral symmetrical fashion, with clear basal and peripheral zones. This picture was described principally by roentgenologists, who considered the condition a form of pulmonary or "uremic" edema. The picture was sometimes seen in hypertensive patients in whom heart failure developed during the course of uremia. Pulmonary densities were often associated with early death. Recovery occasionally followed alleviation of both heart failure and the azotemic state. There have been few histopathological studies of the uremic lung.[1] Epstein and Greenspan [3] described hyaline membranes in the lungs of a patient with glomerulonephritis. They called attention to the marked resemblance of the lung to similar changes occurring in rheumatic pneumonia. More recently, Doniach [4] reported on a group of patients with "uremic" edema of the lungs and described the alveolitis in the lung.

Two of us (H. B. and E. S.) recently reported on a group of patients with uremia who had pulmonary changes.[5] These patients showed abnormal shadows on chest roentgenograms during the course of azotemia, which was due to various causes. Further studies have since been conducted in an attempt to clarify the pathogenesis and clinical features of the uremic lung. In the three year period 1948 to 1950, a group of eight patients with pulmonary changes associated with uremia were observed at the Jewish Memorial Hospital. We believe that these changes occur more frequently than is generally recognized.

## ROENTGEN PICTURE

The roentgen features seen in our patients followed, in general, the pattern described by other authors. The pulmonary densities were generally extensive and confined to the inner lung zones (fig. 1). Although most of the cases showed a "butterfly" distribution, occasional basal involvement was also noted. The densities were transient in some patients and were associated with left ventricular failure. Alleviation of heart failure, in some cases, resulted in the disappearance of the densities.

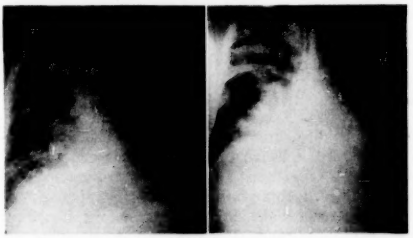

Fig. 1.—Roentgenograms of patient with acute glomerulonephritis associated with bilateral pulmonary densities. Picture on the right shows increase in pulmonary densities shortly before death.

## CLINICAL PICTURE

All the patients observed in this series died. The appearance of the pulmonary densities during uremia seems to indicate an ominous complication. An enlarged cardiac shadow was usually present. The appearance of the pulmonary shadows was occasionally a surprise to the clinician. Although the roentgen picture simulated pulmonary edema, as described by roentgenologists, the patients showed none of the characteristics of this disease. Some patients had mild dsypnea, and physical findings in the chest were minimal. In other patients, the

From the Medical Services of the Jewish Memorial Hospital, New York.

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This work has been aided by a grant from the David Schwartz Research Fund. Two of the cases in this report were studied through the assistance of Drs. DeAngelis, Alesio, Harris and Rudnikoff of Yonkers, N. Y.

1. Ehrich, W., and McIntosh, J. F.: The Pathogenesis of Bronchiolitis Obliterans: Observations in Cases of Bright's Disease, Arch. Path. **13**: 69 (Jan.) 1932.

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3. Epstein, E. Z., and Greenspan, E. B.: Rheumatic Pneumonia, Arch. Int. Med. **68**: 1074 (Dec.) 1941.

4. Doniach, I.: Uremic Edema of the Lungs, Am. J. Roentgenol. **58**: 620, 1947.

5. Bass, H. E., and Singer, E.: Pulmonary Changes in Uremia, J. A. M. A. **144**: 819 (Nov. 4) 1950.

roentgen findings were most pronounced, and dyspnea was severe. These patients showed evident oxygen want, and death was apparently due to anoxia.

### PATHOLOGICAL FEATURES

Grossly, the uremic lungs showed a consolidation of the inner aspect that stopped abruptly below the periphery of the lung. The outer lung zones were normally aerated. On section, no evidence of infection or arteritis was found. Hyaline membranes and hyaline deposits in the alveoli were common features (fig. 2 and 3). The findings were more evident in patients with glomerulonephritis. In the more advanced cases, particularly if the disease had been severe and the patient had lived long, hyalinization of the intra-alveolar exudate was extensive. The alveolar spaces were filled by plugs of rounded hyaline bodies (fig. 2). These findings explain the profound and unalleviated dyspnea from which these patients suffered and suggest that the cause of death in some patients was anoxic rather than renal.

These findings were also described in patients with influenza in the pandemic of 1918, in streptococcic pneumonias, as a result of inhalation of noxious and poisonous gases, in early radiation pneumonitis, in "vernix" or so-called aspiration pneumonia of the newborn, and

Fig. 2.—Photomicrographs of mononuclear alveolar exudate and hyaline deposits seen on section (from same patient as in figure 1).

in rheumatic pneumonia. Farber [6] has described hyaline membranes and masses of amorphous eosin-staining hyaline material in the air spaces. These masses of amorphous material were similar in appearance and staining reactions to the material in the hyaline membranes. Experimental work by Farber indicates that the hyaline membrane may be the result of the mechanical dispersion of this foreign material toward the periphery of the alveolus by air violently inspired. These hyaline deposits have attracted the attention of pediatricians, who have considered intrauterine anoxia as a factor in the patho-

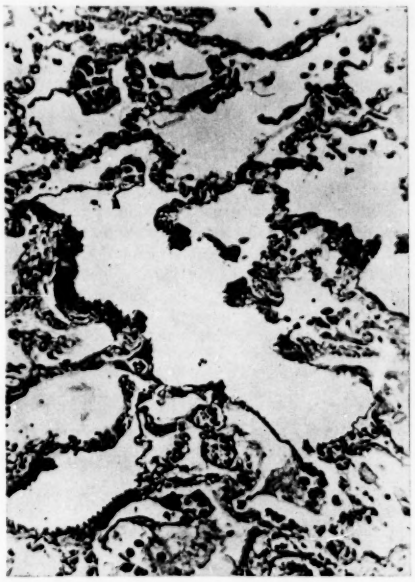

Fig. 3.—Photomicrograph of hyaline membranes seen near periphery of lung (from same patient as in figure 1).

genesis of aspiration pneumonia of the newborn.[7] More recently, similar findings were described in a peculiar pneumonia associated with retinal cytoid bodies.[8]

The hyaline membranes and hyaline deposits in the uremic lung are similar to those found in the conditions described above. The resemblance to the rheumatic lung is striking. In addition, the roentgen features of the uremic lung and rheumatic pneumonia are similar.[9]

### COMMENT

The similarity of these findings in such a variety of conditions suggests a common pathogenesis. The factor of capillary damage and altered capillary permeability has been suggested by others.[10] It is reasonable to assume

6. Farber, S., and Wilson, J. L.: The Hyaline Membrane in the Lungs: A Descriptive Study, Arch. Path. **14**: 437-449 (Oct.) 1932.

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10. Barden, R. P., and Cooper, D. A.: The Roentgen Appearance of the Chest in Diseases Affecting the Peripheral Vascular System of the Lungs: Conditions Associated with Increased Vascular Permeability, Radiology **51**: 44, 1948. Epstein and Greenspan.[3]

that factors of infection, anoxia, hyperergy, chemical irritation, and radiation injury all produce similar damage to the pulmonary capillary bed and thus account for the similar pathological findings. It has been pointed out [2] that the lung changes in uremia occur in only a small percentage of patients with azotemia; the reason for this is not apparent. In the patients we observed, the most striking changes in the lungs occurred in cases associated with acute episodes of glomerulonephritis. The work of Ehrich and McIntosh suggests that repeated insults to the pulmonary capillary bed may occur in chronic glomerulonephritis, culminating in bronchiolitis fibrosa obliterans.

The pulmonary changes herein described as associated with the azotemic states are brought about by altered capillary permeability and are more apt to occur in glomerulonephritic uremia. The importance of these alterations lies in their resemblance to other pulmonary diseases. The most frequent symptoms are dyspnea, which may be severe, and, occasionally, bloody sputum. Fever is not a predominant finding. The pulmonary densities resemble those of tuberculosis, sarcoidosis, pneumoconiosis, fungous diseases, and the various pneumonias.

In one case, hemoptysis was an outstanding symptom and led to an initial diagnosis of pulmonary neoplasm. In another case, the extensive pulmonary densities were the basis for a diagnosis of virus pneumonia, and treatment with various antibiotic drugs was unsuccessful. The finding of these densities in a patient with uremia should lead one to expect a fatal outcome. Positive pressure oxygen, relief of heart failure, and treatment of the azotemic state and acidosis may bring about a recession of the condition. Treatment with antibiotics is usually of no value.

### SUMMARY AND CONCLUSIONS

A group of eight cases of "uremic lungs" was observed, and an attempt was made to correlate the clinical, roentgenological, and pathological findings.

The lung changes in uremia follow a rather consistent pattern from the clinical, roentgenologic and pathological viewpoints. These changes are not specific and are also found in other conditions brought about by altered pulmonary capillary permeability. We believe that these pulmonary alterations occur more frequently than is generally known. The recognition of the "uremic lung" is important from the standpoint of prognosis and its resemblance to other pulmonary diseases.

266 West End Ave. (Dr. Bass).

# TRAUMATIC ARTERIOVENOUS ANEURYSM ASSOCIATED WITH STREPTOCOCCIC SEPTICEMIA

## REPORT OF A CASE WITH CURE FOLLOWING PENICILLIN THERAPY AND OPERATION

*Mark H. Williams, M.D., Binghamton, N. Y.*

Endocarditis or endarteritis occurs rather commonly in patients having congenital cardiac defects. Those having a patent ductus arteriosus or interventricular septal defect are especially susceptible to these complications.[1] Examples of endarteritis and septicemia produced by other arteriovenous fistulas are rare. The first patient in the latter category to be cured after operation was reported by Rienhoff and Hamman [2] in 1935. A second patient cured by operation was reported by Touroff [3] and his associates in 1942. The latter authors were able to find five additional nonoperative cases in the literature. Since the publication of this report three additional cases [4] have been published in which a cure has followed operative treatment. The following report makes a total of 10 cases thus far reported; it is the sixth case in which a cure has followed operation, and the first in which a lateral suture of the fistula was done.

From the Surgical Department, Charles S. Wilson Memorial Hospital, Johnson City, N. Y.

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4. (*a*) Lipton, S., and Miller, H.: Streptococcus Viridans Septicemia-Subacute Bacterial Endarteritis of an Arteriovenous Aneurysm, J. A. M. A. **126**: 766 (Nov. 18) 1944. (*b*) Shumacker, H. B., Jr.; Welford, N. T., and Carter, K. L.: Streptococcus Viridans Septicemia from Vegetations in Femoral Arteriovenous Aneurysm: Report of a Case Cured by Surgical Excision of Aneurysm, Ann. Surg. **124**: 123, 1946. (*c*) Statland, M., and Orr, T. G.: Streptococcus Viridans Endarteritis of an Arteriovenous Aneurysm, J. Lab. & Clin. Med. **34**: 221, 1949.

### REPORT OF A CASE

*History.*—A 46-year-old white factory workman was admitted to the hospital June 6, 1950. He stated that 15 years previously, during an altercation with a barber, he had been stabbed in the left infraclavicular area with a barber shears. Profuse hemorrhage followed, which was controlled by pressure. He recovered rapidly but soon became aware of a diffuse thrill over the entire left infraclavicular area. Except for dyspnea and tachycardia on strenuous exertion, the patient had had no symptoms referable to the injury.

The present illness began three months before admission, when he had "influenza" with generalized aching, chills, and fever. Improvement followed after about 10 days, but five weeks later "virus pneumonia" with recurrence of chills and fever developed. Improvement again occurred after about two weeks, but the patient's appetite was poor; he steadily lost weight and was weak and unable to work. An exacerbation of his symptoms accompanied by shaking chills and profuse sweats led to his admission to the hospital.

*Physical Examination.*—The patient was acutely ill, with a temperature elevation to 101 F. A healed scar, 1.5 cm. long, was present just below the middle of the left clavicle. A distinct thrill was present in the area of the scar, and a loud machinery murmur was heard over the entire left infraclavicular area. This was also heard over the base of the heart and the left scapular area, and it was transmitted upward in the neck and down the left arm to the antecubital fossa. The left arm was not larger than the right, and the veins were not distended. A good radial

pulse was present, and the blood pressure was approximately the same in both arms. The thrill could be obliterated by pressure, and this was not followed by slowing of the pulse (negative Branham's sign). No definite heart murmur was present; the lungs were clear; the liver was enlarged one to two fingerbreadths below the costal margin; the spleen was palpable; no petechiae were present.

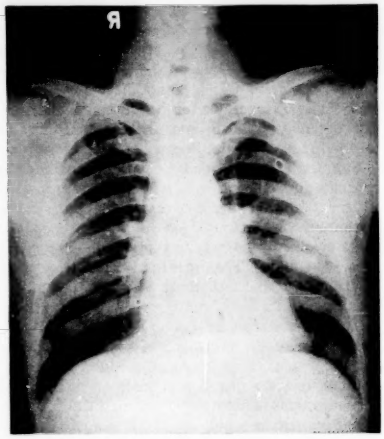


Fig. 1.—This chest roentgenogram was exposed two days after the patient's admission to the hospital. The infiltration in the left lung is believed to be a pulmonary infarct produced by an embolus having its origin in the arteriovenous aneurysm.

*Laboratory Data.*—The chest roentgenogram demonstrated a calcific plaque in the region of the scar in the left infraclavicular area. The heart was approximately normal in size, and an area of consolidation, probably due to a pulmonary infarct, was present in the left lung (Fig. 1). A blood cell count demonstrated 5,200 leukocytes with 62% neutrophils; the red blood cell count was 4,200,000 and the hemoglobin 11.5 gm., or 74%. Two blood cultures, the first obtained the day following admission and the second taken two days later, yielded a heavy growth of hemolytic streptococci after four days' incubation. Sensitivity of the organism to penicillin and chloramphenicol was determined. It was found that its growth was inhibited by 2 units per cubic centimeter of the former and by 4 $\gamma$ per cubic centimeter of the latter antibiotic. Numerous additional blood cultures obtained after penicillin therapy was started were all sterile.

*Diagnosis and Therapy.*—The presence of septicemia with clear-cut evidence of arteriovenous fistula, the absence of a history of rheumatic fever, and the lack of evidence of cardiovascular disease appeared to establish a diagnosis of endarteritis at the site of the arteriovenous communication. Intensive penicillin therapy was started on the day of admission. Two intramuscular injections of 350,000 units and two intravenous doses of 100,000 units were administered daily (a total of 900,000 units). This was continued for a period of 16 days, after which the dosage was reduced to 300,000 units intramuscularly and 100,000 units intravenously. The administration of penicillin in this dosage was continued up to the time of the operation.

*Operation.*—Intratracheal ether-oxygen anesthesia was administered at operation on June 29. A left thoracocervical [6] incision was used with resection of a segment of the medial end of the left clavicle and extension to the left axilla. Proximal control of the subclavian artery at the arch of the aorta and of the subclavian vein at its junction with the innominate was obtained. The axillary artery and vein were isolated at the lateral border of the pectoralis major muscle. Control of the shunt was incomplete, and it was necessary to isolate the subclavian vessels again at the level of the first rib, where they were embedded in extraordinarily dense scar tissue. An aneurysm sac measuring 2 by 3 cm. was isolated at the junction of the third portion of the subclavian with the axillary vessels.

The clinical data (good pulse and blood pressure in the left arm, absence of venous distention, and loud murmur, together with the fact that the shunt was readily obliterated at operation by pressure) made it appear practical to attempt a lateral suture of the defect. The vein was accordingly ligated and transfixed with 2-0 cotton sutures 3 cm. proximal and distal to the aneurysm. The artery was controlled at the same level with rubber catheters, after which the vein was divided immediately above and below the aneurysm. The aneurysm was then widely opened, and inspection demonstrated numerous warty 1 to 2 mm. vegetations identical in appearance to those found in instances of rheumatic endocarditis. These were present in the form of a narrow collar exactly at the margin of the defect in the artery. The aneurysm was trimmed almost flush with the artery, and the defect in the latter was closed with three mattress sutures of 4-0 silk mounted on an atraumatic needle. The sutures were applied to the area bearing the vegetations. The suture line was reinforced with the cuff of the aneurysm with similar suture material (Fig. 2).

The wound was then closed with cotton and wire suture material; drainage of the pleural space was provided by two catheters connected to a conventional water seal deflation system. During the operation 2,500 cc. of blood was administered.

*Pathologic Examination.*[7]—Grossly the specimen was a soft irregular mass of red-brown glistening tissue, 2.5 cm. in its greatest dimension. Microscopically it consisted of hemorrhagic fibroadipose tissue continuous with a large segment of blood vessel wall. Immediately adjacent to the focally ulcerated intima of this structure (but not connected in the sections studied) was a mass of layered fibrin throughout which were dispersed erythrocytes in varying stages of preservation, with large numbers of neutrophils, the latter arranged diffusely and in clusters. Focal necrosis was prominent. There were basophilic clumps, which

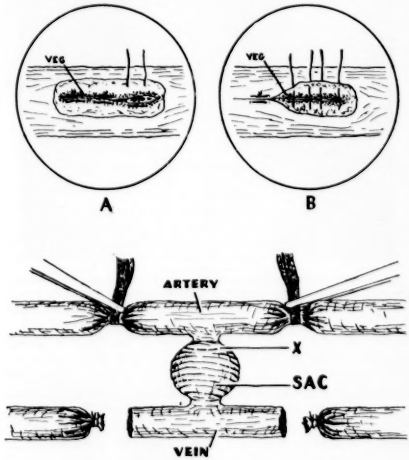


Fig. 2.—This drawing illustrates the aneurysm found at operation. The sac was divided at X, and lateral suture of the defect was done as indicated in insert *A* and *B*. The sutures were applied to the area bearing the vegetations.

5. Deleted in proof.

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7. Dr. Alexander A. Kosinski, pathologist, C. S. Wilson Memorial Hospital.

probably represented bacterial colonies. There was no evidence of organization.

*Postoperative Course.*—The patient tolerated the procedure rather well. A small but definite pulse was present immediately after operation, and within a week the left radial pulse was equal to the right. The left lung expanded promptly, and the catheters were withdrawn after 48 hours. Considerable firm swelling of the left arm developed, and this was controlled by elevation of this extremity. Pain over the sternum was severe for about one week. Anticoagulants were not used; penicillin and streptomycin in ordinary dosage were administered for a period of two weeks following operation.

In a small area at the lower angle of the wound the circulation was poor and a superficial slough of skin, measuring 1 by 3 cm., occurred; the remainder of the wound healed by primary union.

*Subsequent Course.*—The patient was discharged from the hospital July 23, 1950. Six weeks later he returned to his former job in a factory and worked continuously up to Feb. 26, 1951.

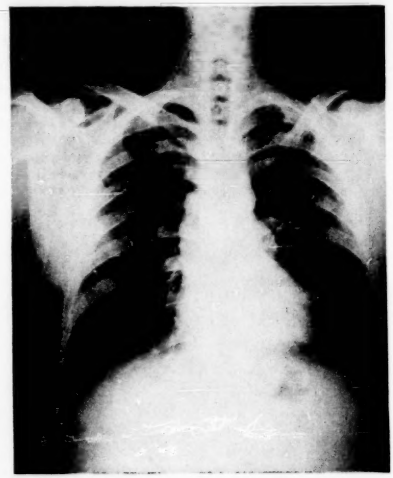

Fig. 3.—This roentgenogram was exposed seven months after operation. The medial third of the clavicle has been resected. The heart appears somewhat smaller as compared with preoperative study (Fig. 1).

During this time partial regeneration of the resected clavicle occurred, producing disability of the left arm in full abduction. Some swelling of the left arm persisted; the circulation remained excellent. The medial end of the clavicle was resected February 28. The patient is now well and has no disability in this extremity. A recent chest roentgenogram (Fig. 3) demonstrates that the heart is now slightly smaller than before the operation.

8. (*a*) Friedberg.[1] Rienhoff and Hamman.[2] (*b*) Touroff, A. S. W., and Vessell, H.: Experiences in the Surgical Treatment of Subacute Streptococcus Viridans Endarteritis Complicating Patent Ductus Arteriosus, J. Thoracic Surg. **10**: 59, 1940. (*c*) Libman, E.: Discussion of Touroff, A. S. W., The Results of Surgical Treatment of Patency of the Ductus Arteriosus Complicated by Subacute Bacterial Endarteritis, Am. Heart J. **25**: 208, 1943. (*d*) Taussig, H. B.: Congenital Malformations of the Heart, New York, The Commonwealth Fund, 1947, p. 346.

9. Rienhoff and Hamman.[2] Touroff, Lande, and Kroop.[3] Statland and Orr.[4c]

10. Rienhoff and Hamman.[2] Touroff, Lande, and Kroop.[3] Lipton and Miller.[4a] Shumacker, Welford, and Carter.[4b]

11. The successful result which followed the excision of the infected arteriovenous aneurysm reported by Rienhoff and Hamman [2] provided the background for the initial attempt [5b] to cure the septicemia associated with ductus arteriosus by ligation.

## COMMENT

The mechanism whereby an arteriovenous shunt predisposes to endocarditis or endarteritis has already received detailed consideration.[8] It appears that the most important factor is the unequal pressures in the two vessels. This permits arterial blood to flow across the shunt with sufficient force to produce constant trauma to the vein and aneurysm. Arteriosclerotic changes are commonly the end-result of this process. Such changes have been encountered in three of the five operative cases previously reported.[9] The injury to the aneurysm or vein produces an area favorable for the lodgement and growth of the organisms, which from time to time may gain entry to the blood stream. Because transient bacteriemia with Streptococcus viridans following various infections or even teeth extraction is of common occurrence, this organism is the usual cause of septicemia in the patients under discussion. In four [10] of the other five operative cases previously reported, this organism was isolated from blood cultures. The organism isolated from the patient of Statland and Orr [4c] was Streptococcus mitis; as previously noted a hemolytic Streptococcus was isolated from the patient reported here.

A measure of the resistance of arteriovenous aneurysms and fistulas to infections of this type is attested to by their rarity as compared with the frequent occurrence of such infections in examples of patent ductus arteriosus and interventricular septal defects. It is noteworthy that the aneurysm was of long standing in each of the five operative cases already cited. Among these patients the average duration of the injury before septicemia developed was 10.8 years. As previously noted the patient described here had had his fistulas 15 years.

Antibiotic therapy has become an important aid in the management of patients with endarteritis and septicemia. Among the five cases previously reported, the blood cultures were rendered sterile in two by the preoperative administration of penicillin. This result was also obtained in the case reported here. Quadruple ligation and excision of the aneurysm was done in all of the previously published cases. Lateral suture of the defect without actual removal of the source of the infection effected a cure in the patient described in this report. This result might have been obtained without antibiotic therapy. This statement is supported by the numerous examples of "prepenicillin" cures of septicemia which have been obtained by ligation of a patent ductus arteriosus.[11]

In general it can be said that penicillin is highly effectual in rendering sterile the blood of patients having an arteriovenous aneurysm and septicemia. For this reason it is an important aid in preparing the patient for surgery. Lasting benefits require a proper operation. It is of interest that vegetations were found in the aneurysms of all of the three cases thus far reported in which the blood had been rendered sterile by penicillin.

## SUMMARY

A patient with hemolytic streptoccic septicemia associated with a traumatic arteriovenous aneurysm at the junction of the left subclavian and axillary arteries is described. Recovery followed intensive penicillin therapy and lateral suture of the aneurysm.

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# ADDISON'S DISEASE DUE TO METASTATIC BRONCHOGENIC CARCINOMA

*Jacques B. Wallach, M.D.*
*and*
*William B. Scharfman, M.D., Jamaica, Long Island, N. Y.*

The frequency of adrenal involvement in bronchogenic carcinoma has been noted by many observers. In Willis'[1] series of 500 consecutive cancer necropsies, the most frequent adrenal metastases occurred in bronchogenic carcinoma, the incidence being 44%. In contrast, the incidence of adrenal involvement by all cancers was 9%. Willis [1] cited five additional series of bronchogenic carcinomas in which the incidence of adrenal metastases varied from 30% to 40%. In most cases, these metastases were bilateral and situated in the medulla. Jaffe [2] and Koletsky [3] reported the incidence of adrenal involvement as 40% and 45%, respectively; the glandular type of carcinoma was most often responsible.

Koletsky's [3] series of 100 bronchogenic carcinomas comprised 10% of all cancers found by him at autopsy. At Queens General Hospital, bronchogenic carcinoma is a frequently encountered malignant tumor; it was found in 2.2% of all autopsies (5,030) performed here during the 10-year period 1936-1945.[4] The incidence of adrenal involvement in these cases is 44%, occurring in one-fourth of the squamous cell cancers and in about one-half of the oat cell and glandular carcinomas.

In view of the frequency of adrenal involvement just noted, it is most interesting that clinical Addison's disease due to metastatic carcinoma is extremely rare. This may be due to several factors: 1. Incomplete adrenal replacement. In a series of cases of Addison's disease studied at autopsy, less than 5% residual adrenal cortical tissue was found.[5] 2. Early death due to the primary carcinoma. 3. Metastatic lesions involving primarily the medulla of the adrenal gland.[1]

The rarity of Addison's disease due to metastatic involvement of the adrenals is well demonstrated by several series of collected cases. In Guttman's [6] review of 566 cases reported up to 1930, tuberculosis was the most frequent cause of Addison's disease, with primary atrophy an important but less common etiologic mechanism; only two primary neoplasms and three metastatic tumors were included. He apparently does not accept the four cases attributed to metastatic carcinoma by Philpott,[7] none of which was described. Sorkin's [8] series of 25 cases studied post mortem included no case due to neoplasm. Soffer [9] cites Rowntree and Snell's series of 31 cases, Snell's series of 30 cases, Duffin's series of 17 cases, and his own 22 cases, all found at autopsy, none of which demonstrated neoplastic adrenal involvement as the etiologic factor. The standard textbooks dealing with Addison's disease mention metastatic adrenal involvement as a rare etiologic factor; however, their only documentation refers to Guttman's review of 1930.

A review of Addison's [10] original 11 cases, of which four were attributed to metastatic carcinoma (from breast, stomach, uterus, and lung), shows that these cases presented an equivocal clinical picture, with limited or no history given in all four cases. Post-mortem studies of these four cases showed only unilateral adrenal involvement. We concur with Soffer's [9] opinion that "it would seem very doubtful that any of this group were true instances of Addison's disease."

Goldzieher [11] states that only a few cases of clinically unquestionable Addison's disease due to tumors are on record (Foersterling, Hertz and Secher, Packard and Steele, Bannwart).

In the American literature, we have been unable to find any confirmed case report of Addison's disease due to replacement of adrenal tissue by tumor. In 1924, Warthin and co-workers [12] reported a case of pigmentation of the skin (Addison's disease) associated with lymphosarcoma involving the lymph nodes of the solar plexus region. However, at autopsy, the adrenals were moderately atrophic with minimal lymphosarcomatous infiltration. Similarly, in the British literature, Bicknell [13] reported a case of skin pigmentation in a man with gastric metastases in abdominal lymph nodes pressing on the solar plexus; the adrenals were normal at autopsy.

Poynton and co-workers [14] reported two cases of bronchogenic carcinoma with cough, weakness, anorexia, and weight loss, in one of which skin pigmentation developed. At autopsy, this case grossly showed residual adrenal cortical tissue. The second case showed tumor only in the left adrenal, the right appearing normal.

In 1942, Strang [15] described a man with skin pigmentation, bouts of weakness, anorexia, asthenia, vomiting, and hypotension. Autopsy showed bronchogenic carcinoma (oat cell type) with replacement of both adrenals by metastases.

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From the Department of Pathology (Alfred Angrist, M.D., Director) and the Department of Medicine (James R. Reuling, M.D., Director) Queens General Hospital, Jamaica, N. Y.

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13. Bicknell, F.: Addison's Disease Due to Malignant Involvement of the Solar Plexus, Brit. M. J. **2**: 206 (Aug. 4) 1934.

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## REPORT OF A CASE

The following case report [16] describes Addison's disease due to adrenal replacement by metastases from a bronchogenic carcinoma.

G. V., a 58-year-old white man, entered Queens General Hospital on Oct. 15, 1948, with complaints of anorexia, weakness, and weight loss. The symptoms began approximately 12 months before entry, when vague indigestion and anorexia were noted. Several visits to local physicians resulted in varying diagnoses such as "nervous stomach" and cholecystitis. Cholecystograms disclosed no abnormalities. One x-ray was interpreted as demonstrating an immovable right diaphragm. Three months before entry the patient's physician noted a hilar mass and a right inguinal mass. The diagnosis from biopsy of the inguinal mass was adenocarcinoma, primary site undetermined. He was given pteropterin® (sodium pteroyl triglutamate) and radiation to the chest. Despite this therapy, asthenia and anorexia increased in severity. He had a 40 lb. (18 kg.) weight loss over a period of about one year. No localizing symptoms referable to the chest, abdomen, or genitourinary tract were elicited. Past history, review of systems, and family history were irrelevant.

Physical examination revealed an emaciated, asthenic man who appeared pale and chronically ill. The temperature was 98.6 F, pulse rate 80, respirations 16, and blood pressure 110/80. The skin contained numerous deeply pigmented spots on the face, arms, chest, and back, which the patient thought he had always had. The mucous membranes were pale but otherwise not remarkable. There was no increased pigmentation in the axillary folds or pressure points. The scalp was normal. The eyes revealed the left pupil smaller than the right, with a sluggish light response on the left. The fundi were not remarkable. The ears, nose, and throat were normal. The neck was supple, with no tracheal deviation, thyroid, or lymph node enlargement. The spine was normal. The chest was symmetrical, with pigmentation over the anterior wall, which corresponded to the site of previous radiation therapy. The lungs revealed no auscultatory or percussion abnormalities. The heart was normal. No organs or masses were palpable in the abdomen. The extremities were normal. A healed scar was present in the right inguinal region, with a hard immovable mass underlying the incision. Superficial and deep tendon reflexes were within normal limits. Rectal examination disclosed no abnormalities. The admitting impression was metastatic carcinoma, primary site undetermined; bronchus, gastrointestinal tract, and pancreas were mentioned as possibilities.

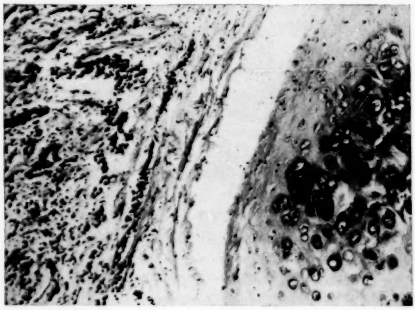

Fig. 1.—Photomicrograph of tissue from the bronchus. This shows primary bronchogenic carcinoma composed of anaplastic, glandular tissue with some scirrhous reaction.

On admission the urine was normal. The white cell count was 11,250, with a normal differential count, red cell count 3,120,000, and hemoglobin 9.5 gm. The fasting blood sugar was 90 mg. per 100 cc. and blood urea nitrogen 20 mg. per 100 cc. The icterus index was 4.0, phosphorus 5.3 mg. per 100 cc., acid phosphatase 0.8 units, alkaline phosphatase 11.7 units, total protein 6.8 gm. per 100 cc. (albumin 4.6 and globulin 2.2).

The patient was treated with a high caloric diet. X-rays on October 21 revealed no bone abnormalities. A chest x-ray showed the trachea to be deviated to the right; a homogeneous density was seen involving the upper portion of the right lung field extending down to the second rib anteriorly. The radiographic appearance was suggestive of a primary Pancoast tumor. Weakness and fatigue persisted. On November 10, 500 cc. of whole blood was given. On December 2, six weeks after entry, increasing pigmentation was noted. Asthenia was marked, and blood pressure was 95/65. At this time, Addison's disease secondary to metastatic involvement of the adrenals was suspected.

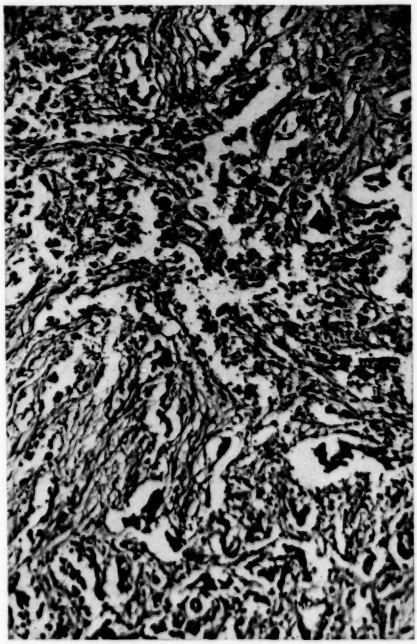

Fig. 2.—Photomicrograph of adrenal tissue. This shows complete replacement by anaplastic glandular carcinoma.

On December 7 the blood pressure was 85/60, and the patient had lost 13 lb. (6 kg.) in six weeks. By December 13 the chest x-ray showed no change. On November 22, the plasma chlorides were 96 mEq. per liter; repeat examination on December 2 showed 85 mEq. A Robinson-Kepler-Power test was positive in parts I and II, with A equal to 5.7. Serum potassium was 20.5 mg. per 100 cc. The serum sodium was 122 mEq. per liter (281 mg. per 100 cc.). A glucose tolerance test showed a mild diabetic curve (fasting sugar 100, maximum 225 mg. per 100 cc., and 165 mg. per 100 cc. after three hours). On December 10, desoxycorticosterone therapy (5 mg. intramuscularly every second day) with enteric-coated sodium chloride (5 gm. daily) was instituted. Despite therapy a watery diarrhea persisted. On December 20, 10 days after therapy was begun, the blood pressure had risen to 108/68 and the patient had gained 5 lb. (2.5 kg.). On December 23, the 17-ketosteroids were 4.34 mg. in 24 hours. On December 26, pulmonary edema suddenly developed and the patient died the following day. The clinical diagnoses were carcinomatosis,

16. This case will be included in the series to be published from this hospital by Butterly, J. M.; Fishman, L.; Seckler, J., and Steinberg, H.: Addison's Disease Secondary to Metastatic Carcinoma of the Adrenal Glands.

probable primary site in the bronchus, Addison's disease secondary to adrenal metastases, and acute pulmonary edema.

At autopsy, the skin contained multiple freckles, which varied from dark brown to black. Diffuse brown pigmentation was present on the face and both arms. There was a tumor arising from the right upper lobe bronchus and involving almost the entire upper lobe parenchyma (Fig. 1). Both adrenal glands were completely replaced by tumor tissue, no recognizable adrenal parenchyma remaining. Tumor involvement of the subcutaneous lymph nodes was present in the inguinal, cervical, and axillary regions. There was also tumor involvement of the submucosa of the jejunum. Microscopic examination of the tissues showed the tumor to be an adenocarcinoma. The adrenals were completely replaced by tumor, with no residual glandular tissue seen (Fig. 2). The final anatomic diagnosis was bronchogenic adenocarcinoma, right upper lobe, with metastases to both adrenals, jejunum, and subcutaneous lymph nodes, and pulmonary edema.

### COMMENT

It is felt that the above case represents true Addison's disease confirmed by clinical history and physical examination, complete laboratory study, response to therapy, and autopsy showing complete replacement of the adrenal glands. In the absence of any diabetic pathological changes in the pancreas or kidney, and considering the normal fasting blood sugar, we are unable to explain the moderate elevation and prolongation of the blood sugar levels in the glucose tolerance test.

Some of the reasons for the rarity of this condition have been discussed, namely, incomplete adrenal replacement, early death from the primary disease, and involvement chiefly of the medulla by metastatic lesions. In addition, failure to suspect this possibility clinically is an important reason. This may be due to the absence of previous reports as well as to some similarities in the symptoms of advanced carcinoma and Addison's disease, in particular anorexia, weakness, asthenia, and weight loss.

### SUMMARY AND CONCLUSIONS

A case of Addison's disease due to adrenal replacement by metastases from bronchogenic carcinoma is reported. Addison's disease due to metastatic tumor replacing the adrenals is an extremely rare condition. Review of the American literature fails to disclose any acceptable cases of this entity, and a paucity of cases is noted in the foreign literature. The probable explanations for the infrequency of this syndrome is discussed.

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**Cranks and Scientists.**—There is hardly a scientific theory that is not questioned by some scientist of repute. This is so because science is unfinished business, an inquiry into the habits of nature where all the evidence is not in and where much of the evidence that is in has not been digested. Under these conditions there is room for minority opinions, some of which will, no doubt, turn out to be correct. There is a parallel here, though, with horse racing: long shots run in the races, and some will no doubt win. But a sports commentator who expected a long shot to win in almost every race would be open to suspicion. In the same way, the man who accepts one or two scientific "long shots" is perfectly reasonable, but when a man accepts too many of them, his scientific standing becomes suspect. The crank is one who tries to force nature into his own selected pattern; the evidence of strain resulting from this practice is divergence from currently accepted views. In attempting to defend these divergences, the crank may be led to excessive reliance upon minority opinions and the authority of individuals. As a corollary to this, he may also attempt to discredit majority opinion, scientific method, or scientists in general.—Laurence J. Lafleur, Cranks and Scientists, *The Scientific Monthly*, November, 1951.

# CLINICAL NOTES

## TELOGNOSIS

### THREE YEARS OF EXPERIENCE WITH DIAGNOSIS BY TELEPHONE-TRANSMITTED ROENTGENOGRAMS

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*M. B. Hermel, M.D., Philadelphia*
*H. S. Read, M.D.*
*Bernard Caplan, M.D., Atlantic City, N. J.*
*and*
*A. G. Cooley, New York*

Telognosis, or the interpretation of facsimile roentgenograms obtained from distant sources by telephone or radio,[1] has been used continuously since 1947. Following the initial trial of this system between Chester County Hospital, West Chester, Pa., and Philadelphia, a circuit was established over busy commercial telephone channels between the Ventnor Clinic in Atlantic City, N. J., and Philadelphia, a distance of 60 miles (100 km.). This circuit has been tested continuously during the past year to determine whether a full-time roentgenologic service could be maintained, and to explore this method of teaching radiologists in training.

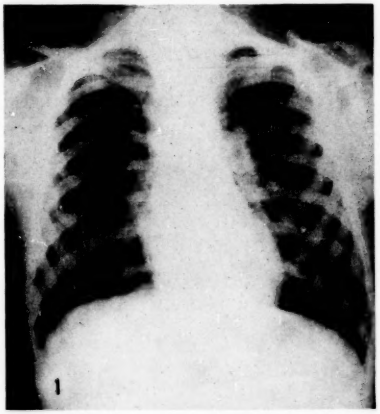

Fig. 1.—Facsimile of a chest roentgenogram of a 6-year-old boy transmitted over a telephone circuit 60 miles long.

The apparatus consists of a transmitter that scans roentgenograms of any size up to 14 by 17 in. (35.6 by 43.2 cm.). The receiver reproduces facsimiles reduced to half the size of the original films. Consultations and

From the Jewish Hospital, Philadelphia, and the Ventnor Clinic, Atlantic City, N. J.

1. Gershon-Cohen, J., and Cooley, A. G.: Roentgenographic Facsimile: A Rapid Accurate Method for Reproducing Roentgenograms at a Distance via Wire or Radio Transmission, Am. J. Roentgenol. **61**: 557-559 (April) 1949; Telognosis, Radiology **55**: 582-587 (Oct.) 1950.

reports of the x-ray findings are made over the same telephone circuit employed for sending the facsimiles and may be recorded automatically on a dictograph. Every type of roentgenogram can be adequately reproduced by this service (fig. 1 and 2). There is no limit to the distance over which roentgenographic facsimiles may be transmitted. According to circumstances, either ordinary commercial telephone circuits or shortwave radio transmission may be used.

When this equipment becomes available, it is anticipated that the costs will be low enough for the budgets of small rural hospitals. At present, the average telephone rates are $3 per mile per month for use of a private circuit. The signals are sent directly from the site of the transmitter to that of the recorder without alerting the central telephone office. Arrangements can be made for toll charges that would decrease the cost of limited telephone service. The facsimile photographic film (Eastman Type C) is inexpensive, costing an average of less than 4 cents per copy.

Fig. 2.—Facsimile of a roentgenogram of the stomach and duodenum transmitted over a telephone circuit 60 miles long.

For several months, every roentgenogram made at the Ventnor Clinic in Atlantic City was interpreted from facsimiles in Philadelphia. The interpretation of the facsimile was compared with that of the original film, and the comparisons were extremely accurate. As a matter of fact, no significant discrepancies occurred. The lack of fluoroscopy was compensated for by use of extra films, so that the absence of roentgenoscopy presented no handicap in making the proper diagnosis. This method of telognosis is not proposed as a substitute for a radiologist in a hospital. Hospitals that have competent radiological services would not find the method practical. On the other hand, a small hospital without a skilled radiologist on the staff could obtain such services from a distance.

It might be possible to use telognosis as a means of teaching residents and fellows in radiology by having them serve in small hospitals connected with a teaching center. This would give the resident a measure of responsibility without loss of supervision. This procedure then would serve a double purpose: (1) to train young radiologists without loss of expert teaching and supervision and (2) to insure expert full time roentgenologic service for the small hospital. There are other unexplored fields where this system might prove useful, such as in small military outposts, on ships at sea, and in parts of the world, such as Asia and Africa, where there are few trained roentgenologists.

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## TRACHEOESOPHAGEAL FISTULA

### VALUE OF IMMEDIATE DIAGNOSIS, WITH REPORT OF A CASE

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*and*
*C. J. Miangolarra, M.D., New Orleans*

This report is presented to illustrate the value of immediate diagnosis in effecting a cure in cases of tracheoesophageal fistula. The condition of the patient, in our report, was diagnosed at birth, and operation was done when the infant was just over 6 hours old, the youngest surgically treated patient described in the literature concerned with this anomaly.

Although Durston, in 1670, was the first to recognize tracheoesophageal fistula as an entity, it was centuries later before this anomaly could be successfully treated. In 1939, Leven [1] and Ladd [2] independently reported the first patients to be cured by ligation of the fistula with the creation of an anterior thoracic esophagus. Today, reports of success in management of this defect are emanating from all large surgical centers. Recent reports, including those of Potts,[3] Kahle,[4] and Ladd,[5] emphasize the importance of prompt diagnosis, careful preoperative and postoperative care, and surgical intervention in the form of gastrostomy, ligation of the fistula, and primary end-to-end anastomosis of the esophagus. The following case illustrates the supreme importance of early diagnosis, the necessity of immediate surgery, and the fact that gastrostomy in some cases is not necessary.

Paramount in the treatment of this congenital anomaly is early diagnosis. The greatest hope for infants with this

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1. Leven, N. L.: Congenital Atresia of the Esophagus with Tracheoesophageal Fistula; Report of Successful Extrapleural Ligation of Fistulous Communication and Cervical Esophagostomy, J. Thoracic Surg. **10**: 648-657 (Aug.) 1941.

2. Ladd, W. E.: The Surgical Treatment of Esophageal Atresia and Tracheoesophageal Fistulas, New England J. Med. **230**: 625-637 (May) 1944.

3. Potts, W. J.: Symposium on Pediatrics; Esophageal Atresia and Tracheo-esophageal Fistula, M. Clin. North America **34**: 247-256 (Jan.) 1950.

4. Kahle, H. R.: Tracheoesophageal Fistula, with Report of a Case Treated Successfully by Ligation and End-to-End Anastomosis, New Orleans M. & S. J. **102**: 487-492 (April) 1950.

5. Ladd, W. E.: Congenital Anomalies of the Esophagus, Pediatrics **6**: 9-19 (July) 1950.

condition rests with the physician who sees the newborn during the first 15 minutes of life. The condition may be suspected when it is impossible to get the baby "dry" in spite of repeated aspirations of saliva and mucus from the mouth. Excessive salivation and a frothy mucus continues to occur at the mouth of an infant so affected.

Fig. 1.—Roentgenogram of the infant one hour old, confirming the initial diagnosis of tracheoesophageal fistula.

When this picture is present, a no. 8 or 10 French catheter should be passed gently, while the baby is yet in the delivery room, through the oropharynx into the esophagus until a point of obstruction is encountered. Prompt roentgenographic studies should follow, which either rule out or definitely establish the presence of tracheoesophageal fistula. With the diagnosis only needing confirmation by means of x-ray studies, the small catheter is reinserted and through it 2 to 3 cc. of iodized oil is instilled into the esophagus while fluoroscopic observation is conducted. The various types of tracheoesophageal fistulas are readily recognized in the roentgenograms and have been conveniently classified into five types by Ladd.

Once early diagnosis is made, immediate surgery is indicated. In those cases in which the diagnosis is established before the baby is more than a few hours old, there has not, as a rule, been time for pneumonitis, which invariably complicates the condition, to develop. The resistance of the infant and the state of hydration are such that surgery can be performed with the least risk and a minimum of replacement and supportive therapy. In situations in which a primary end-to-end anastomosis of the esophagus can be accomplished, it is unnecessary to do a preliminary or even subsequent gastrostomy. Sufficient clyses during the first 48 hours postoperatively can be given to assure adequate intake and maintenance of necessary metabolic requirements. The infant's "dry mouth" postoperatively is in sharp contrast to the situation prior to surgery. When the "dry mouth" is seen, one can feel certain that the esophagus is patent, but again, fluoroscopic and roentgenographic confirmation, with the use of iodized oil, is indicated. With a patent esophagus assured, oral feedings are begun and gradually increased over a period of two weeks. At the end of this time normal formula requirements can be met.

The following report exemplifies the value of early diagnosis and prompt surgery in a case of tracheoesophageal fistula.

## REPORT OF A CASE

On June 6, 1950, at 5:37 p. m., a 7 lb. 10¾ oz. (3,480 gm.) baby girl was born. The mother, a 23-year-old primipara, was delivered by low forceps episiotomy under general anesthesia after an uncomplicated pregnancy. The delivery was without incident other than the fact that the newborn presented with excessive amounts of saliva and frothy mucus at the mouth. A small hemangioma of the face was also noted. The attending staff suspected tracheoesophageal fistula in this infant. While the infant was still in the delivery room, a no. 8 French catheter was inserted into the esophagus but seemed to meet an obstruction. The next step was to confirm the diagnosis by x-ray studies. Between 6:30 p. m. and 7:30 p. m. fluoroscopy and roentgenography were accomplished by the hospital roentgenologist. Three cubic centimeters of iodized oil was instilled through a no. 8 French catheter into the proximal esophagus. A Type III tracheoesophageal fistula, as described by Ladd, was visualized (fig. 1) without difficulty and the surgeon (C. J. M.) notified. The case was reviewed, and all consultants agreed to immediate surgery. The infant could be in no better condition with such an anomaly than at the time. The anesthesiologist was notified and operating room made ready; at 11:45 p. m. the anesthetic was begun. The patient was just over 6 hours old.

Under general ether anesthesia, the infant was placed on her left side and the right side and back prepared with ether and draped in the usual fashion. A hockey-stick type of incision was made medial and inferolateral to the elevated scapula for exposure of the second, third, and fourth ribs. The proximal 6 cm.

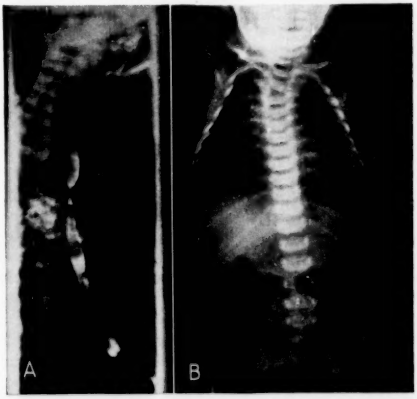


Fig. 2.—*A*, roentgenogram of infant 36 hours postoperatively, illustrating patency of esophagus. Narrowing at suture line is due largely to edema. *B*, roentgenogram of patient at 3 weeks of age. Clinically the child was well and presented no evidence of esophageal or pulmonary disease.

of these ribs was resected just beyond their neck and the parietal pleura reflected inferiorly and anteriorly. Care was taken to remain extrapleural. When the azygos vein was divided, the tracheoesophageal fistula could be visualized without difficulty. The distal part of the esophagus was found to stem from a point

0.5 cm. above the bifurcation of the trachea. A no. 00 black silk ligature was carefully tied close to the trachea and the esophagus divided. When the proximal esophageal pouch was freed, it was then possible to accomplish an open end-to-end anastomosis of the esophagus between the pouch above and the distal esophagus below, using no. 00000 atraumatic black silk sutures. There was no evidence of leakage on completion of the anastomosis. The right lung was reexpanded with positive pressure anesthesia. The wound was closed in layers with interrupted surgical and black silk sutures. A firm dressing was applied to the wound, and the infant was returned to its incubator. The entire operative procedure was performed in two hours. The patient was given penicillin, 20,000 units every three hours; streptomycin, 0.12 gm. every six hours; nothing by mouth; continuous oxygen; and suction of oral contents as necessary. Within the first 24 hours, in addition to the above, 30 cc. of 5% glucose in isotonic sodium chloride solution and 90 cc. of 5% glucose in distilled water were given by clysis. During the next 12 hours, 50 cc. of 5% glucose in isotonic sodium chloride solution and 10 mg. of a water-soluble, synthetic vitamin K compound (synkayvite®) were given. Thirty-six hours postoperatively the patient was sent to the x-ray department for study with iodized oil (3 cc. orally). When this material was seen to pass without difficulty (fig. 2*A*), feedings of sterile water (4 cc.) every two hours were begun for 36 hours. Following this, feeding with similac® (8 cc.) was begun. Feedings were gradually increased over a two-week period so that normal oral formula intake could be met. The infant's temperature was at its peak the day of surgery (100.8 F) and gradually subsided to normal over a one-week period. One week after surgery the patient had lost 7¼ oz. (206 gm.), and at the beginning of the second week she was 2 oz. (57 gm.) less than birth weight. At the beginning of the third week the infant had regained her birth weight.

The patient's clinical course was exceptionally smooth. Skin sutures were removed on the sixth postoperative day. A slight edema of the eyelids was present a few days postoperatively, owing to the irritation from open ether anesthesia. The hematologic picture was within normal limits as regards red cell count and hemoglobin. The white cell count and differential count remained elevated until one week postoperatively, at which time it returned to normal limits. Roentgenograms (fig. 2*B*) the day prior to discharge revealed clear lung fields with no residual pneumonitis or iodized oil. Noted incidentally was another congenital anomaly, a bifid third thoracic vertebra. The patient was discharged June 28, when 22 days old, apparently cured.

Although the patient left the city at 6 months of age, correspondence from the family indicates that the child, now over a year old, is progressing well and growing normally.

## COMMENT

The diagnosis of tracheoesophageal fistula is incumbent on the first physician to handle the infant, be he general practitioner, obstetrician, or pediatrician. The newborn with excessive salivation and frothy mucus, which continues to appear at the mouth, and is difficult to keep "dry" in spite of repeated aspirations, should be suspected of having such an anomaly. Such suspicion should prompt the cautious passage of a small French catheter. If the tube meets an obstruction, roentgenographic studies with iodized oil in small amounts should be made. When the diagnosis has been thus confirmed, immediate surgery on the newborn is indicated and, when technically possible, ligation of the fistula with primary end-to-end anastomosis of the esophagus should be performed. No gastrostomy and little supportive therapy seems indicated in infants so treated in the first six and possibly twelve hours of life. A case to illustrate these facts is reported.

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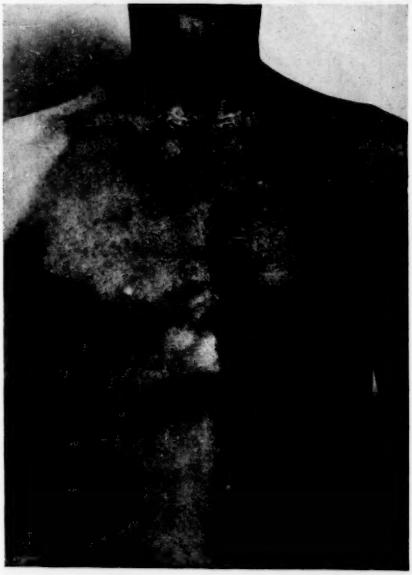
# CUTANEOUS SEQUELAE FOLLOWING TREATMENT OF BRONCHIAL ASTHMA WITH INORGANIC ARSENIC

## REPORT OF TWO CASES

*Frances Pascher, M.D., Brooklyn*
*and*
*Jack Wolf, M.D., New York*

During the fall of 1950 two patients with classical arsenical eruptions were seen at the Skin and Cancer Unit of New York University Hospital. The first had an arsenical melanosis and the second a diffuse and pronounced arsenical pigmentation of the skin associated with numerous punctate keratoses on the neck, shoulders, palms, and soles. Both patients gave the history of having taken orally medicament containing Fowler's solution (solution of potassium arsenite) and potassium iodide for more than one year prior to admission for the alleviation of asthma. To our knowledge, a detailed report on this method of treatment has not been published, but a brief description has been recorded.[1] The purpose of this paper is to call attention to the untoward effects attributable to this treatment in two cases.



(Case 1) Arsenical hyperpigmentation of skin following administration of Fowler's solution for treatment of bronchial asthma.

From the Department of Dermatology and Syphilology, New York University Postgraduate Medical School (Chairman, Dr. Marion B. Sulzberger), and the Skin and Cancer Unit of the University Hospital.

1. The Gay Treatment for Asthma, Queries and Minor Notes, J. A. M. A. 130:379 (Feb. 9) 1946.

## REPORT OF CASES

CASE 1.—J. D., a white man, 58, was admitted on Sept. 5, 1950. He had had asthma and a chronic cough for four years. Two radical sinus operations were performed, and nasal polyps were removed shortly after the onset of these symptoms. Prior to January, 1949, aminophylline suppositories and aminophylline tablets (U. S. P.) and a nasal spray containing ephedrine sulfate were the principal medicaments used for relief. From January, 1949, to April, 1950, the patient took orally medicament which his physician claimed was the same as that supplied by a clinic at Biloxi, Miss. During this 15 month period he was given 20 to 25 bottles (4 oz. [120 gm.] each) of the medicament. The patient was instructed to take 1 teaspoonful three times a day for six consecutive weeks, then 1 teaspoonful twice a day for six months, and then 1 teaspoonful a day for the balance of the period. Because there was no notable improvement, the patient decided to visit the clinic in Biloxi. His first visit to this clinic was on May 5, 1950, at which time he was given a supply of a red liquid, which appeared to him to be identical with the medicament taken previously. He was also instructed to take 1 calcium tablet daily and "doxychol K" (a mixture of ketocholanic acids and desoxycholic acid) to keep his bowel movements regular. After an observation period of one week, the patient returned to his home, where treatment was continued as outlined for two additional weeks. At the end of the third week the patient complained of loss of appetite, loss of weight (approximately 4 or 5 lb. [1.8 to 2.3 kg.]), and some itching. No eruption was noted at the time. The patient reported these symptoms by mail to the clinic in Biloxi, whereupon he was sent a new supply of a red liquid with word that the new red liquid was the same except that the proportion of some of the components had been changed. The patient appeared to tolerate the altered formula well. Approximately 10 oz. (300 gm.) were consumed during May, 6 oz. (180 gm.) during July, and 6 oz. during August, 1950. The episodes of asthma continued to recur nevertheless, and the patient found it necessary to take aminophylline tablets (U. S. P.) or use aminophylline suppositories and an ephedrine nasal spray for the severer attacks. During August, 1950, isopropylarterenol ("norisodrine") sulfate was added to the list of drugs which the patient used for relief. Late in August, two weeks prior to his first visit to the Skin and Cancer Unit, a somewhat pruritic eruption developed for which he came to the Skin and Cancer Unit. He was unaware of any discoloration of the skin.

Physical Findings: The patient was moderately dyspneic and cyanotic. There was a mottled hyperpigmentation of the skin of the neck, chest, upper part of the back, and upper extremities. The oral mucosa and the skin over the face, abdomen, lower part of the back and lower extremities were spared. Superimposed on this hyperpigmented background was a papular erythematous eruption of small red papules uniformly distributed over the chest, abdomen, back, and arms. Other findings of note were an emphysematous chest, dry sibilant bronchi, and enlargement of the right side of the heart.

Laboratory Findings: Histological sections of the hyperpigmented skin of the anterior chest wall were examined by Dr. Charles F. Sims. The essential changes were the presence of pigment in most of the basal cell layers, pigment laden chromatophores, and free pigment granules in the upper corium. A histological diagnosis of "pigmentation (melanin) consistent with the clinical diagnosis of arsenical pigmentation" was made.

Patch tests with the following agents gave negative reactions: 30% potassium iodide in petrolatum, 30% potassium bromide in petrolatum, petrolatum (control), Fowler's solution, "red liquid" taken orally, 1% ephedrine sulfate solution, and isopropylarterenol sulfate. Intracutaneous tests with inhalants and foods elicited no significant immediate wheal reactions.

Repeated routine urinalysis showed no abnormal findings except for a faint trace of protein in some specimens. A test for arsenic in the urine showed 0.7 mg. per 100 cc. in 1,400 cc. (normal is 0 to 1.0 mg. in 24 hours by Gutzeit method, with unrestricted diet). The initial blood count showed 6,000,000 erythrocytes, 17.4 gm. (120%) of hemoglobin, and 6,500 leukocytes per cubic milliliter of blood. The hematocrit reading was 70% (normal is 40 to 45%).

X-ray examination of the sinuses disclosed a pansinusitus, most marked of the antra and ethnoids. Electrocardiographic tracings showed changes compatible with cor pulmonale.

Course: When first seen on Sept. 5, 1950, the patient was advised to discontinue use of all medicaments except the aminophylline preparations for symptomatic relief. The erythematous papular eruption distributed over the chest, abdomen, back, and arms disappeared within 10 days, but there was no change in the nature or degree of hyperpigmentation. On reexamination on July 19, 1951, it was found that the erythematous papular eruption which was present on the initial examination had not recurred. The degree of hyperpigmentation, however, appeared even more pronounced. Questioning revealed that during November, 1950, the patient had resumed the ingestion of the red liquid medicament. Isopropylarterenol sulfate, whose use was introduced prior to the onset of the erythematous papular eruption in August, 1950, was not taken again.

Diagnosis: The diagnosis was bronchial asthma, polycythemia secondary to anoxemia, sinusitis, arsenical pigmentation of the skin, and dermatitis medicamentosa, presumably due to isopropylarterenol sulfate.

CASE 2.—H. S., a white man, 24, first came to the outpatient department of the Skin and Cancer Unit on Oct. 21, 1950, because of an eruption on the hands and feet and a "nail condition" of several months duration. He was unaware of the other cutaneous changes discovered on examination of the skin.

History: The patient had had a "skin condition" from the time of infancy up to the age of 6 years. Bronchial asthma followed soon after this dermatosis healed. During 1945, at the age of 18, a disabling sinusitis also developed. These various "allergic" manifestations influenced him in the selection of his college, and he decided to continue his schooling in Arizona. During the three years in Arizona his health was much improved, and he had relatively few asthmatic attacks. On returning to New York in 1948, he remained comparatively well for about seven to eight months, only to lapse into a status asthmaticus lasting more than two weeks. It was at this time (April, 1949) that he began taking the following arsenic containing prescription:

| | |
|---|---|
| Fowler's solution | 8.0 cc. |
| Potassium Iodide | 6.5 gm. |
| Phenobarbital | 0.6 gm. |
| Saccharin | 0.5 gm. |
| Tincture of cudbear | 1.0 cc. |
| Distilled water to make a total of | 60.0 cc. |

The patient was informed that the medicament was essentially the Gay formula. In accordance with instructions, 1 teaspoonful of this preparation was taken twice daily until July 20, 1950, a period approximating 15 months. The patient then discontinued use of the medicament and remained free from asthma up to the time of admission. Neither the patient nor his family were able to give any information relative to previous medicaments used beyond the fact that during the patient's entire lifetime he had taken medicament in one form or another.

Physical Examination: The patient showed a mottled dusky gray and rather pronounced hyperpigmentation of the entire integument. This hyperpigmentation was less apparent on the face than on other parts of the body. Only the oral mucosa was spared. In addition, small punctate keratoses were found over the back, shoulders, palms, and soles, more numerous on the palms and soles than in the other areas. The palmar and plantar surfaces also appeared dry, scaly, and somewhat erythematous. The nails of the middle and ring fingers of both hands were partially destroyed, exposing a roughened and thickened floor. The affected nails were broken off close to the cuticle, and the distal edge of each nail was separated from the nail bed underneath.

Laboratory Findings: Two biopsies were performed, one of a hyperpigmented area on the chest and the other of a hyperkeratotic portion of the left sole. The histological examinations were made by Dr. Arthur Hyman, who considered the findings in both sections part of the picture of arsenical intoxication. A mycological examination was made of the affected fingernails, palms, and soles. Candida albicans was cultured from the nails. No fungi or yeasts were recovered from the soles.

Course: There was little or no change in the cutaneous manifestations during the early weeks of observation. Reexamination on July 21, 1951, revealed that the distribution and degree of hyperpigmentation remained unaltered. The number of punctate keratoses on the trunk, palms, and soles, however, was considerably reduced. Only a few widely scattered lesions were seen on the trunk, and not more than a few keratoses were present on the palms and soles. The soles were now hyperhidrotic and no longer scaly and thickened. Some maceration of the webs was evident. The palms appeared normal in texture except for a few keratoses. There was no apparent change in the nail affection.

Diagnosis: The diagnosis was arsenical pigmentation of the skin, diffuse arsenical keratoderma of the palms and soles, arsenical keratoses on the palms, soles, and trunk, and onychomycosis caused by C. albicans.

### COMMENT

Arsenical hyperpigmentation (melanosis) was first noted (although it may very well have occurred earlier) approximately 20 months after use of Fowler's solution had been started in Case 1 and after 18 months in Case 2. The arsenical keratoses and the keratoderma of the palms and soles in Case 2 were discovered simultaneously with the hyperpigmentation. The diagnosis in both cases was based on the clinical and histological features. Increased amounts of arsenic in the urine were also demonstrated in Case 1.

Experience has shown that the time of onset for these and other cutaneous manifestations of chronic arsenicalism varies and may appear as early as one month or as late as 30 years after the ingestion or the parenteral administration of the drug.[2] It is mandatory, therefore, that patients be kept under careful observation and direct supervision from the time arsenotherapy is instituted (regardless of the condition under treatment) for possible signs and symptoms of intolerance. Most of the sequelae attendant on the therapeutic application of the inorganic arsenicals have, as Sulzberger and Baer [3] point out, resulted from the prolonged and indiscriminate use of the drug. Properly used, with strict attention to indications and contraindications, arsenic is still a valuable therapeutic agent in the management of some diseases.

A tendency toward spontaneous regression of the keratoses and the keratoderma was noted in Case 2. It should be pointed out, however, that as a rule arsenical keratoses persist and that some give rise to squamous cell epitheliomas.[4]

### SUMMARY

Two cases of cutaneous manifestations of arsenicalism following the prolonged and indiscriminate use of an arsenic containing remedy (Fowler's solution) in the treatment of bronchial asthma are described. Arsenical keratoses and keratoderma followed in one case and arsenical pigmentation in both cases.

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2. Ayres, S., Jr., and Anderson, N. P.: Cutaneous Manifestations of Arsenic Poisoning, Arch. Dermat. & Syph. **30**: 33-43 (July) 1934.

3. Editorial Comment, in Sulzberger, M. B., and Baer, R. L.: Year Book of Dermatology and Syphilology, Chicago, The Year Book Publishers, Inc., 1950, pp. 191-192.

4. Montgomery, H.: Arsenic as an Etiologic Agent in Certain Types of Epithelioma: Differential Diagnosis from, and Further Studies Regarding, Superficial Epitheliomatosis and Bowen's Disease, Arch. Dermat. & Syph. **32**: 218-236 (Aug.) 1935. MacKee, G. M., and Cipollaro, A. C.: Cutaneous Cancer and Precancer, New York, American Journal of Cancer, 1937, p. 23.

## MULTIPLE PRIMARY MALIGNANT TUMORS OF RECTUM AND BREAST COMPLICATING PREGNANCY

### REPORT OF A CASE

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The existence of malignant disease during pregnancy is fortunately a rare occurrence. Malignant tumors of the breast or rectum in the age group under 35 are also rarely reported. In an extensive review of the literature not a single case report of multiple primary tumors complicating a pregnancy was found. Because of the relatively few cases of malignancy associated with pregnancy, there is still some confusion concerning the treatment of choice in these cases. Therefore the occurrence of carcinoma of the rectum and of the breast as a complication of pregnancy and the method of treatment are worthy of being reported.

### REPORT OF A CASE

Mrs. C. B., a 22-year-old Negro woman, was first seen in the Santa Rita Clinic on Jan. 31, 1949, with the chief complaint of diarrhea and bloody bowel movements. About four months previously the patient started having seven to eight watery, bloody bowel movements daily. Because of the development of weakness two weeks after onset she consulted a physician, who prescribed medication that temporarily controlled the diarrhea. The diarrhea soon recurred and lasted two to three weeks, followed by normal bowel movements for several days. No rectal examination had been done. There was no complaint of abdominal pain. Three months before, the patient had some nausea and vomiting, which lasted two months, but the patient attributed this to her pregnancy. Her last menstrual period had been three months previously, on Oct. 13, 1948.

*History and Physical Examination.*—The patient had had no previous pregnancies. Catamenia had begun at 14 years, occurring every 28 days with moderate flow for three days. The history by systems was noncontributory. Both parents were living and well, and there was no history of cancer in the family. The patient was a well-developed, well-nourished Negro woman. Examination of head, neck ears, nose, and throat revealed no evidence of disease. The breasts were firm, with no masses or discharge. The heart had occasional extrasystoles, with no murmurs. The blood pressure was 120/70. Examination of the abdomen revealed slight tenderness in both lower quadrants. The liver was not palpable. The pelvic examination revealed a soft cervix, with no lacerations; the adnexa were normal, the uterus was smooth and globular, located 3 to 4 cm. above the symphysis. Rectal examinations revealed a large fungating mass about 3 in. from the anal verge. The mass almost entirely encircled the rectal wall except anteriorly, and there was some fixation of the tumor mass.

*Laboratory and X-Ray Findings.*—A biopsy taken at this time revealed adenocarcinoma of the rectum, grade 3. The patient was immediately admitted to the hospital for surgery. An x-ray examination revealed a normal adult chest. An electrocardiogram showed sinus tachycardia and ventricular extrasystoles. Results of urinalysis were negative, except for the presence of abnormal amounts of acetone. The blood studies showed a red blood cell count of 3,840,000 per cubic millimeter, a hemoglobin value of 10.7 gm. per 100 cc., a white blood cell count of 5,000, with a normal differential count. The nonprotein nitrogen level was 24 mg. per 100 cc.

Preoperative medication consisted of two 500 cc. whole-blood transfusions, a high-carbohydrate, high-protein and low-residue diet, succinylsulfathiazole (sulfasuxadine®), 2.5 gm. five times a day, and daily enemas for five days. Two days before surgery the administration of diethylstilbestrol, 10 mg. daily, was started.

*Treatment and Care.*—With the patient under spinal anesthesia, a cystoscopy was done, and No. 7 ureteral catheters were inserted. No tumor infiltration was noted in the bladder. The abdomen was opened, and exploration of the abdomen revealed enlarged regional lymph nodes along the superior hemorrhoidal and inferior mesenteric vessels up to the aorta. No masses were palpated in the liver. The uterus was normal for a three and a half month pregnancy. A combined abdominoperineal resection of the rectum was done, and the colostomy was placed in the left side slightly above and lateral to the umbilicus.

The postoperative course was relatively uneventful for eight days, although the patient had an episode of mild shock immediately postoperatively. The shock was treated with stimulants and 500 cc. of whole blood. On the eighth postoperative day the patient became nauseated and vomited, and gas failed to pass through the colostomy. A Miller-Abbott tube was inserted, the distention subsided, and on the 11th day the colostomy started functioning once again. Postoperative management consisted of intravenous administration of fluids for the first three days, with a gradual increase in the diet. The patient was given antibiotics but had no temperature elevation. She also received 25 mg. of progesterone intramuscularly daily for 12 days. On the 22nd postoperative day the patient was taken to surgery for a plastic repair of the colostomy, which had become stenosed by scar tissue. This was uneventful, and the patient was discharged five days later.

The patient reentered the hospital 21 days later because of recurrence of the stenosis. She had gained 3½ lb. (1.3 kg.) in the preceding two weeks. The physical examination at this time showed no masses palpable in the breasts, and the liver was not palpable. The colostomy did not admit the little finger. Another plastic repair on the colostomy was done, and the patient was discharged three days later. She reentered the hospital on April 10, 1949, with jaundice of three days' duration. Physical examination showed a slight icteric tint in the sclera. No abnormal masses were palpated in the breasts. The uterus was enlarged to the size of a six-month gestation. A rather firm band of scar tissue was felt behind the midportion of the posterior vaginal wall.

Laboratory examinations revealed clay-colored stools that were negative for bile, an icterus index of 67, and a serum bilirubin level of 7.5 mg. per 100 cc. The urine contained bile, but no urobilinogen. The cephalin flocculation test was 1+ in 48 hours; three days later it was 3+ in 48 hours. The thymol turbidity was 6 units (0 to 5 units is normal). The stool color gradually returned to normal, as did the urine. The impression was that the patient had homologous serum jaundice.

Because excessive scar tissue developed that caused stenosis of the colostomy, it was decided to do another colostomy at the splenic flexure. A small left subcostal incision was made so as not to disturb the uterus; the splenic flexure was pulled out; and a loop colostomy done. The left lobe of the liver was palpated at this time, and a small nodule was noted. The patient was discharged on May 4, 1949.

Five weeks after discharge from the previous admission the patient was seen with the complaint of a mass in the breast noted two days previously. The mass was located in the upper inner quadrant of the left breast just medial to the nipple. It was firm, 1.5 cm. in diameter, and freely movable. The impression of several examining physicians was that the mass was a fibroadenoma.

A breast biopsy revealed a carcinoma with numerous mitotic figures. In the opinion of the pathologist the tumor was of mammary origin. In view of the patient's now gradual decline and the previously noted liver metastasis, a radical breast amputation was not done. Radiation therapy was immediately started and 24 treatments were given, totaling 2,000 r to the breast anteriorly, 1,200 r to the axilla, and 1,200 r to the supraclavicular region.

On July 20, 1949, the patient was delivered by a Norton extraperitoneal section. The infant was an apparently normal girl, weighing 5 lb. 2 oz. (3,175 gm.). Weakness developed rather rapidly following delivery, and the patient complained of severe back pain. She was discharged on July 31, 1949.

On Aug. 2, 1949, the patient was readmitted in a semicomatose condition. The previous day she had been very restless for several hours, then had mild convulsions, which occurred every 20 minutes and lasted about 1 minute. Physical examination showed the head deviated to the left, with weakness of the left arm. Numerous small nodules were noted on the skin of the abdomen. The eyes were dilated, and left nystagmus was present. A small nodule was noted in the lower outer quadrant of the right breast. The heart rate was 200 to 240, and the blood pressure was 155/100. The liver was enlarged to 6 cm. below the right costal margin and was firm and irregular. No adenopathy was noted. A serosanguinous lochia was present on pelvic examination.

A spinal puncture was done, and the initial pressure was 136 mm. of water. No blood was noted. There were 2 cells per cubic millimeter, and the protein content was 60 mg. per 100 cc. A chest roentgenogram showed no evidence of pulmonary or bony metastasis. The patient's temperature on admission was 99 F, shortly rose to 105 F and the axillary temperature varied thereafter between 100 and 105 F. Sedatives and supportive intravenous therapy were given. The convulsions were controlled, and after several days the patient seemed to be improving. Consciousness returned, and she was able to take oral nourishment. However, she again became unconscious and died on Aug. 13, 1949. Permission for an autopsy was not obtained. Clinical evidences led to the conclusion that this patient terminally had carcinoma metastatic to the liver, skin, and brain, with death resulting from brain metastasis.

## COMMENT

Tumors of the visceral organs in the younger age group and multiple tumors in all ages are an infrequent occurrence. However, they do occur, and because a patient is not in the older age group, many physicians are prone to rule out malignancy without further examination. This fallacy is fortunately becoming less frequent but still occurs, as noted in the case just reported. Fowler [1] in 1926 presented an excellent review of 112 cases of malignancy in patients under 26 years of age and found 18.7% of the malignant lesions to be in the large bowel and 6.25% in the breast. Shedden,[2] Jordan and Chamberlin,[3] and Rosenberg [4] also stress the rarity of tumors of the bowel in persons under 35. All of these authors also stress the high mortality rate of malignancy in the younger age group. McDonald,[5] on the other hand, feels that the younger patients have a better outlook due to their better general condition.

Multiple tumors also play a small but definite role in our discussion, because of our desire as physicians to consider all symptoms as being caused by one condition. In reviewing articles by Slaughter,[6] Stalker, Phillips, and Pemberton,[7] and Warren and Gates,[8] in which they give a comprehensive review of the literature, we find an average incidence of all primary multiple tumors to be about 3.9%. Slaughter in his review of 1,868 cases found only 15 (0.8%) of the cases involving a combi-

1. Fowler, L. H.: Malignant Epithelial Neoplasms, Carcinoma, and Epithelioma Occurring in Persons Under 26 Years of Age, Surg., Gynec. & Obst. **43**: 73-84, 1926.

2. Shedden, W. M.: Carcinoma of the Rectum and Sigmoid with Particular Reference to the Disease as Seen in Youth, New England J. Med. **209**: 528-539, 1933.

3. Jordan, S. M., and Chamberlin, D. T.: Cancer of the Digestive Tract in the Young, S. Clin. North America **17**: 815-820, 1937.

4. Rosenberg, H.: Carcinom im jugendlichen, Ztschr. Krebsforsch. **41**: 230-238, 1934.

5. McDonald, I.: Mammary Carcinoma: A Review of 2,636 Cases, Surg., Gynec. & Obst. **74**: 75-82, 1942.

6. Slaughter, D. P.: The Multiplicity of Origin of Malignant Tumors: A Collective Review, Internat. Abstr. Surg. **79**: 89-98, 1944.

7. Stalker, L. K.; Phillips, R. B., and Pemberton, J. De J.: Multiple Primary Malignant Lesions, Surg., Gynec. & Obst. **68**: 595-602, 1939.

8. Warren, S., and Gates, O.: Multiple Primary Tumors: Survey of the Literature and a Statistical Study, Am. J. Cancer **16**: 1358-1414, 1932.

nation of carcinoma of the breast and large bowel. In Warren and Gates' study, the youngest patient reported with the combination of breast and gastrointestinal malignancy was 42 years of age. The average age reported by all writers is 59 to 61.

In reviewing the literature on carcinoma of the rectum or large bowel complicating pregnancy Banner, Hunt, and Dixon [9] in 1945 reported all known cases to date and added 7 more cases to the 62 they had compiled from the literature. Subsequently, Finn and Lord,[10] Putzki and his colleagues,[11] Swartley and co-workers,[12] and Sadugor [13] have added one case and Bacon and Rowe [14] four cases. Thus a total of 77 cases of carcinoma of the large bowel complicating pregnancy have been found in the literature up to the present.

With such a paucity of material available to review and considering that only a small percentage of these cases have occurred since the advent of improved surgical technique and endocrine and antibiotic therapy, there is still confusion regarding the proper management. Standard textbooks in obstetrics, such as Stander,[15] give us very little help on the subject. Russell [16] recommended that if the tumor is found early in pregnancy, labor should be induced and a radical operation done later. In advanced pregnancy with a viable fetus a cesarean section, hysterectomy, and detachment of the rectum should be performed, so a Rehn or Liermann procedure can be done later. Tchebotarevsky (1908) recommends removal of operable tumors as soon as possible, termination of the pregnancy before operation unless it is early and there is a possibility of preserving the pregnancy even with radical operation, or a colostomy, if the tumor is inoperable.

Berkeley, Bonney, and MacLeod [18] advocate that in acute obstruction, regardless of the length of pregnancy, a hysterectomy, colostomy, and later a resection be done. If the tumor is operable and the rectum is not obstructed, the uterus should be emptied, removed, a colostomy performed, and later a resection, or a hysterectomy and colostomy done in early months. In later months of the pregnancy conservative methods may be used, then a cesarean section and colostomy should be performed. Adair [19] favors immediate interruption of the pregnancy as soon as possible after the diagnosis is made, if there is any possibility of a cure, and resection of the colon as soon as possible. I agree in part with Bacon and Rowe, who recommend in early pregnancy removal of the tumor with relative disregard to the pregnancy. However, in the second trimester they recommend a Porro section and resection of the lesion if the patient's condition warrants it. In the third trimester they recommend a cesarean section and hysterectomy. If the condition of the patient permits, the resection is also done at the time, otherwise the resection is made in two to four weeks after delivery.

In the more recent papers there is a growing tendency to treat the carcinoma independently of the pregnancy. Bacon, quoting Maud Slye, states that extragenital cancer (except in the breast) is not influenced by pregnancy, and, therefore, if this is true there is absolutely no indication for hysterectomy or abortion. Slye [20] found in mice that in general there is a retardation of tumor growth during pregnancy, since the body feeds the fetus rather than the tumor. Kross [21] similarly reports that growth of mammary and uterine cancers is hastened, but there is no effect or actual slowing of extragenital cancer. Bainbridge, on the other hand, feels that pregnancy speeds up all cancer growth.

With these facts in mind I feel that the treatment of choice in carcinoma of the large bowel complicating pregnancy is to treat the disease regardless of the pregnancy. True, the enlargement of the uterus during the second trimester offers some technical difficulties, but they are not insurmountable. However, should the uterus be involved in an extension of the malignant lesion, then if the lesion is to be removed the uterus must be included in the resection. Once again, though, this follows the dictum of treating the malignant lesion regardless of the pregnancy. Although each case must be treated individually in my opinion the following treatment should be recommended in carcinoma of the rectum or sigmoid during pregnancy. 1. In the first and second trimesters, the lesions should be resected either by abdominoperineal resection or by end-to-end anastomosis. 2. In the third trimester, cesarean section should be performed in the seventh and eighth months, and, depending on the status of the patient, resection of the malignant lesion should be made at this time or after two to four weeks. This may be the time to do a preliminary colostomy. In the ninth month labor may be induced with delivery from below if the lesion is not too large, followed in two to four weeks by resection, or the criteria set down for the seventh and eighth months may be used. Antibiotics and endocrine preparations should be a definite part of the preoperative and postoperative regimen.

At no time should it be necessary to attack the life of fetus directly. However, as previously stated, if the uterus is involved by direct extension of the tumor, it should be removed. If the resection is done post partum,

9. Banner, E. A.; Hunt, A. B., and Dixon, C. F.: Pregnancy Associated with Carcinoma of the Large Intestine, Surg., Gynec. & Obst. **80**: 211-216, 1945.

10. Finn, W. F., and Lord, J. W.: Carcinoma Producing Acute Intestinal Obstruction During Pregnancy, Surg., Gynec. & Obst. **80**: 545-548, 1945.

11. Putzki, P. S.; Scully, J. H.; Kotz, H.; Kaufman, and Torrey: Carcinoma of the Colon Producing Acute Intestinal Obstruction During Pregnancy, Am. J. Surg. **77**: 749-754, 1949.

12. Swartley, W. B.; Newton, Z. B.; Hartman, J. C., and Stayman, J. W., Jr.: Perforated Carcinoma of the Large Intestine Complicating Pregnancy: Successful Operative Management, Ann. Surg. **125**: 251-256, 1947.

13. Sadugor, M. G.: Carcinoma of the Rectum Complicating Pregnancy, California Med. **70**: 489-490, 1949.

14. Bacon, H. E., and Rowe, R. J.: Abdominoperineal Proctosigmoidectomy for Rectal Cancer Complicating Pregnancy: Report of 4 Cases, South. M. J. **40**: 471-479, 1947.

15. Stander, H. J.: Williams Obstetrics: A Textbook for the Use of Students and Practitioners, New York, Appleton-Century-Crofts Company, 1941, p. 1197.

16. Russell, A. W.: Cancer of the Rectum as a Complication of Pregnancy and Labour, Scottish M. & S. J. **12**: 409-507, 1903.

17. Deleted on proof.

18. Berkeley, C.; Bonney, V., and MacLeod, D.: The Abnormal in Obstetrics, London, William Wood & Company, 1938, p. 120.

19. Adair, F. L.: Obstetrics and Gynecology, vol. 1 and 2, Philadelphia, Lea & Febiger, 1940, p. 623.

20. Slye, M.: The Relation of Pregnancy and Reproduction to Tumor Growth; Incidence and Inheritability of Spontaneous Tumors in Mice, J. Cancer Res. **5**: 25, 1920.

21. Kross, I.: Pregnancy and Tumor Growth, J. Cancer Res. **6**: 245-250, 1921.

22. Deleted on proof.

a hysterectomy need not be done. If an abdominoperineal resection is done early in the pregnancy, the delivery of choice should be from below, unless there is some contraindication on pelvic examination, such as developed in the case reported.

As can be noted from review of the literature, carcinoma of the breast during pregnancy is seen far more frequently than carcinoma of the rectum. Lee [23] in reviewing 1,827 cases of carcinoma of the breast reported 306 cases occurring in women under 40 years of age. Of the 306 women, 11 were pregnant and 14 lactating. Harrington [24] reports that 2% of all his radical mastectomies were on women who were pregnant or lactating. Brooks and Proffitt [25] conclude that there is no evidence to support the idea that carcinoma of the breast is originated by pregnancy. They do feel, however, that the rate of growth of carcinoma of the breast is increased by pregnancy. Kilgore [26] reported 49 cases of cancer during pregnancy, with 70% cure by radical mastectomy if the axillary nodes were not involved and 11.5% cure if axillary nodes were involved.

The argument regarding the treatment of carcinoma of the breast during pregnancy continues to be a question. If we are to agree with Haagensen and Stout [27] or Lenz [28] the mortality from cancer will certainly be high. Still others, Tyler [29] and Geschickter,[30] recommend abortion followed by radical mastectomy, unless the procedure is done late in pregnancy, when delivery should first be attempted, then the radical mastectomy done.

A third thought, as followed by Harrington,[31] Cole and Rossiter,[32] Power,[33] and Smith,[34] is that the patient should have a radical mastectomy and the pregnancy should be allowed to go to term. Certainly the figures of Harrington (see table) and Kilgore give a sound basis for this program. These results alone indicate that, although the results are not as good as on nonpregnant patients, there is a definite survival rate following mastectomy and we should avail the patient of this by using a radical procedure, with the same criteria for operability as if the patient were not pregnant.

Smith [34] in a review of the effect of pregnancy on malignant tumors states that those patients whose pregnancies were not interrupted did as well or better than those whose pregnancies were interrupted when first seen. Taylor [35] and de Cholnoky [36] in the study of breast carcinoma in youth feel that carcinoma in the young tends to be of higher grade malignancy and metastasize earlier. Taylor notes that in carcinoma of the breast of equivalent extent and equal grade of malignancy the age of the patient alone does not affect the outlook, the five-year survival rates being about equal.

Considering Harrington and Smith's figures the most promising in the final analysis for both mother and infant, I feel that treatment should consist of radical mastectomy as soon as possible. This should be done regardless of the stage of the pregnancy. The operation should be followed by x-ray therapy. The decision to do a radical mastectomy, however, should depend, not on the pregnancy, but on whether the patient would have a radical mastectomy if she were not pregnant. It is not within the realm of this paper to include a complete discussion of treatment of radical mastectomies postoperatively.

## COMMENT

Unfortunately, one case, especially one terminating fatally, is a poor basis on which to draw many conclusions. However, in the case reported there are several points in the treatment that we would like to stress. 1. A thorough physical examination was made. The malignant lesion in this patient's rectum was noted the first time the patient had a rectal examination. Had the first physician examined this patient thoroughly her ultimate prognosis might have been much better. In Bacon's review he noted that 64 of the 70 lesions of the rectum were palpable. 2. Similarly, we must be ever alert to developments in the course of the disease. The breast lesion was noted only eight to nine weeks after the patient had been in the hospital and had had a complete physical examination. 3. As soon as possible after discovery of the malignant lesion this patient had an abdominoperineal resection. Unfortunately, with regional lymph nodes already involved as far down as the aorta, her prognosis, pregnant or not, was poor. 4. The original desire to allow this patient to deliver from below was abandoned because of excessive scar tissue bands, which could be palpated deep in the posterior vagina. Extraperitoneal section was done because the colostomy caused a contaminated abdominal wall. 5. Although radical mastectomy would have been the procedure of choice, biopsy only was done because of the previously noted liver metastasis. A desire to retard the lesion was the reason

*Survival Rates Following Radical Mastectomy in Pregnant or Lactating Patients**

| Yr. After Operation | Patients With Metastasis | | Patients Without Metastasis | |
|---|---|---|---|---|
| | No. Patients Traceable | % Survivals | No. Patients Traceable | % Survivals |
| 3 | 84 | 15.5 | 15 | 60 |
| 5 | 78 | 7.7 | 14 | 57.1 |
| 10 | 64 | 3.1 | 13 | 38.5 |
| 15 | 48 | 2.1 | 9 | 22.2 |
| 20 | 27 | 0 | 5 | 20 |

* Data based on a table by Harrington.[24]

23. Lee, B. J.: Significant Problems for the Obstetrician in the Field of Mammary Cancer, Am. J. Obst. & Gynec. **20**: 775-781, 1930

24. Harrington, S. W.: Results of Radical Mastectomy in 5,026 Cases of Carcinoma of the Breast: Various Clinical and Pathologic Factors Which Influence Prognosis, Pennsylvania M. J. **43**: 413-427, 1940.

25. Brooks, B., and Proffitt, J. N.: Influence of Pregnancy on Cancer of the Breast, Surgery **25**: 1-11, 1949.

26. Kilgore, A. R.: Tumors and Tumor-Like Lesions of the Breast in Association with Pregnancy and Lactation, Arch. Surg. **18**: 2086-2098, 1929.

27. Haagensen, C. D., and Stout, A. P.: Carcinoma of the Breast: Criteria of Operability, Ann. Surg. **118**: 859-870, 1943.

28. Lenz, M.: Tumor Dosage and Results in Roentgen Therapy of Cancer of the Breast, Am. J. Roentgenol. **56**: 67-74, 1946.

29. Tyler, G. T.: What Advice Shall We Give Regarding Pregnancy in Patients with Mammary Cancer? Virginia M. Monthly **47**: 375, 1920.

30. Geschickter, C. F.: Diseases of the Breast: Diagnosis, Pathology, Treatment, ed. 2, Philadelphia, J. B. Lippincott Co., 1945, p. 175.

31. Harrington, S. W.: Carcinoma of the Breast: Results of Surgical Treatment When the Carcinoma Occurred in the Course of Pregnancy or Lactation and When Pregnancy Occurred Subsequent to Operation, 1910-1933, Ann. Surg. **106**: 690-700, 1937.

32. Cole, and Rossiter.: The Breast, in Lewis, D.: Practice of Surgery, Clinical, Diagnostic, Operative, Postoperative, vol. 5, Hagerstown, Md., W. F. Prior Co., 1930, Chap. 6, p. 85.

33. Power, H. A.: Pregnancy Complicating Carcinoma of the Breast, Pennsylvania M. J. **45**: 1049-1050, 1942.

34. Smith, F. R.: Effect of Pregnancy on Malignant Tumors, Am. J. Obst. & Gynec. **34**: 616-633, 1937.

35. Taylor, G. W.: Carcinoma of the Breast in Young Women, New England J. Med. **215**: 1276-1278, 1936.

36. de Cholnoky, T.: Mammary Cancer in Youth, Surg., Gynec. & Obst. **77**: 55-60, 1943.

for x-ray therapy. Some might argue that irradiation in this case was a useless procedure. This fact was considered but it was felt that the patient should have the benefits of any doubt.

### SUMMARY AND CONCLUSIONS

This is as far as I know the first case reported of of multiple primary tumors complicating the same pregnancy. A case report of a 22-year-old Negro woman with carcinoma of the rectum and carcinoma of breast, both discovered and treated during the pregnancy, is given.

The literature is reviewed and tumors of the younger age groups as well as multiple tumors are noted to be rare.

Carcinoma of the rectum during pregnancy is discussed. The literature contained reports of 77 cases, with one added here for a total of 78. In carcinoma of the rectum I recommend the following measures: (1) in the first and second trimesters a resection of the lesion either by abdominoperineal resection or section with an end-to-end anastomosis; (2) in the seventh and eighth months a cesarean section and, depending on the status of the patient, a resection of the malignancy at this time or after two to four weeks; and (3) in the ninth month induction of labor, with delivery from below followed in two to four weeks by resection, or the procedure recommended for the seventh and eighth months. The uterus is to be removed only if involved by direct extension of the tumor. Delivery from below is to be allowed only if rectal and pelvic findings permit.

Carcinoma of the breast during pregnancy is discussed, and the treatment recommended is radical mastectomy followed by x-ray therapy, regardless of the stage of pregnancy. However, if the patient is due within one to two weeks, it might be preferable to perform delivery first. The criteria for operability should be the same as for nonpregnant patients. Treatment of carcinoma during pregnancy is reviewed with the conclusion that the malignant disease should be eradicated and the pregnancy allowed to continue. I would like once again to place special emphasis on the fetus. Too many physicians are prone to consider abortion a panacea for all malignant disease complicating pregnancy. However, the excellent review of Smith [34] on the effect of pregnancy on malignant tumors would be enlightening to many physicians.

Box 321.

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**Pregnancy After Forty.**—From his very conception the infant born of parents past 40 has an environment different from that which he might have had 20 years earlier. At this late date in the human reproductive period, the fetus is more apt to share his uterine covering with fibromyomata. His attitude in utero is more inclined to be influenced by such a condition as a relaxed abdominal wall, and his mother has had a greater opportunity to develop thyroid disease, changes in her cardiovascular system, or even cancer. Embryonic and fetal development may be influenced directly by local pelvic pathology or indirectly by conditions of a systemic nature. During the two decades in which he might have been born the infant's parents have had a greater span of emotional experience; their earning powers have changed, and in fact, the entire world into which the new baby is born is different. In many respects, the infant has postmature parents.—John Parks, M.D., Pregnancy After Forty, *Geriatrics*, November-December, 1951.

## REITER'S DISEASE

### REPORT OF A CASE IN A WOMAN

*Solomon Rinkoff, M.D., New York*

In 1916 Reiter [1] described a clinical entity in a German lieutenant characterized by abdominal cramps and bloody diarrhea, followed by urethritis, conjunctivitis, and later by arthritis of the left knee, right elbow, left wrist, and joints of the fingers of the right hand in that order. Subsequently cystitis, edema of the prepuce, iritis, splenomegaly, and pustular lesions of the hip also developed in this patient. Reiter was unable to influence the course of the disease by any therapy at his command, but recognized that the symptoms did not result from either gonorrhea or dysentery. About the same time Fiessinger and Leroy [2] in France and Macfie [3] in Africa made independent reports of this disease.

Many reports of this syndrome followed in the French, German, and Scandinavian literature, but it was not until 1942 that the disease was recognized in America and reported by Bauer and Engleman.[4] Since then there have been numerous reports in the American literature,[5] but except for one questionable case [6] they have all been in men. For this reason I wish to report the occurrence of this disease in a woman.

### REPORT OF A CASE

C. L., a 49-year-old married white woman, was referred to me by Dr. H. L. Greene on May 28, 1948, and was admitted the same day to the Bronx Hospital. Frequency and burning on urination had developed about three weeks prior to admission. Her urine contained numerous pus clumps. She was given methenamine mandelate (mandelamine®) tablets, but diarrhea developed and the drug was discontinued. She was then given phenylazodiaminopyridine (pyridium®) hydrochloride tablets without relief of symptoms. Five days prior to admission she had received two injections of procaine penicillin G totaling 600,000 units. Four days prior to admission conjunctivitis developed and the next day pain and swelling in the right wrist and stiffness of the fingers of the right hand appeared. Low-grade fever developed about a week prior to admission.

Physical examination revealed an acutely ill white woman, with a temperature of 101.6 F. Both eyelids were red and swollen, with encrusted margins. There were marked congestion of the conjunctivas and free pus in the conjunctival sacs. Photophobia was present. The throat was normal. The heart rhythm was regular, with no murmurs; blood pressure was 120/80. The lungs and abdomen were normal. Vaginal examination revealed a profuse discharge. There was marked redness, swelling and limitation of motion of the right wrist. The fingers of the right hand were also stiff. A diagnosis of Reiter's disease was made.

1. Reiter, H.: Ueber eine bisher unerkannte Spirochäteninfektion (Spirochaetosis arthritica), Deutsche med. Wchnschr. **41**: 1535, 1916.

2. Fiessinger, N., and Leroy, E.: Contribution à l'étude d'une épidémie de dysenterie dans la Somme, Bull. et mém. Soc. méd. hôp. Paris **40**: 2030, 1916.

3. Macfie, J. W. S.: Urethral Spirochaetosis, Parasitology **9**: 274, 1917.

4. Bauer, W., and Engleman, E. P.: Syndrome of Unknown Etiology Characterized by Urethritis, Conjunctivitis, and Arthritis (So-Called Reiter's Disease), Tr. A. Am. Physicians **57**: 307, 1942.

5. (*a*) Colby, F. H.: Renal Complications of Reiter's Disease, J. Urol. **52**: 415, 1944. (*b*) Rosenblum, H. H.: So-Called Reiter's Disease: Triad of Acute Arthritis, Conjunctivitis and Urethritis, U. S. Nav. M. Bull. **44**: 375, 1945. (*c*) Hollander, J. L.; Fogarty, C. W., Jr.; Abrams, N. R., and Kydd, D. M.: Arthritis Resembling Reiter's Syndrome: Observations on 25 Cases, J. A. M. A. **129**: 593 (Oct. 27) 1945.

6. Lever, W. F., and Crawford, G. M.: Keratosis Blennorrhagica Without Gonorrhea (Reiter's Disease), Arch. Dermat. & Syph. **49**: 389 (June) 1944.

Immediately after admission smears and cultures were taken from the eyes and cervix. A specimen of urine obtained by catheterization was also examined and cultured. All smears and cultures were negative for Neisseria gonorrhea. The urine contained numerous clumps and pus cells, but no bacteria. The vaginal smear revealed numerous pus cells and gram-positive cocci and rods. Pus cells but no bacteria were seen on the smear taken from the eyes. Salicylate therapy, 90 grains (6 gm.) daily, with meperidine (demerol®) hydrochloride for pain was begun.

On May 29 the patient was examined by Dr. Herman Ballen of the ophthalmological service, who made the following observations: Both lids were red and swollen, with encrusted margins. In the conjunctivas the vessels were dilated and congested, with free pus in the conjunctival sacs. The right pupil was larger than the left. The left pupil was irregular and reacted sluggishly to light. There were posterior adhesions. The right pupil was round and reacted to light. On dilation with 1% solution of homatropine hydrochloride, the margin of the left pupil adhered to the capsule. The anterior capsule of the left eye, over the area of the pupil, was covered with organized exudate. The aqueous humor of the left eye was cloudy. Reexamination on June 1 by Dr. Ballen revealed that the globe of the right eye was soft and white. The pupil was dilated, and the anterior chamber was clear. The fundus was normal. There were marked ciliary injections in the left eye; the globe was tender to touch. The pupil was dilated and adherent posteriorly; the aqueous humor was cloudy. There was an old, organized exudate on the anterior capsule in the pupillary area, with new exudate on the anterior capsule. The fundus could not be visualized because of the inflammatory reaction in the anterior chamber and anterior capsule. The intraocular tension in the right eye was 20 mm. (Schoetz). The clinical impression was iridocyclitis of the left eye. The diagnosis was acute conjunctivitis of unknown origin, with iritis of the left eye (Reiter's disease).

The treatment he prescribed consisted of the application of a 2% solution of homatropine hydrochloride every 4 hours for 24 hours. If the intraocular pressure remained normal, this was to be changed to a 1% solution of atropine sulfate three times daily. A solution of benzalkonium (zephiran®) chloride 1:4,000 was to be administered every two hours. Hot compresses were to be applied for 10 minutes every two hours.

About June 3 the patient developed arthritic pain in cervical vertebras and the right knee. The pain and swelling of the right wrist persisted. On June 4 she was unable to turn her head because of cervical pain and immobility. On June 9 the right eye was almost normal. However, the left eye still had ciliary injection and exudate over the anterior capsule; the fundus could not be visualized well. She also had a good deal of pain in the left eye. On this day the right temporomandibular joint became tender on palpation and motion.

On June 11 the left eye appeared improved. The patient could count fingers at 3 ft. The intraocular tension was normal. Ciliary injection and exudate in the anterior capsule were diminishing, and the fundus could be seen, but not clearly. The patient still had joint pains, but they were not severe and were controlled by salicylates.

The patient had an exacerbation of the conjunctivitis of the right eye on June 16, but this subsided in a few days. Her general condition improved. The conjunctivitis and iritis of the left eye gradually cleared and visual acuity increased. The arthritic manifestations also diminished in intensity and frequency. During hospitalization her temperature varied as follows: 100 to 101.6 F, first week; 100 to 102 F, second week; 100 to 101 F, third week; 99.6 to 100.6 F, fourth week; and 100 F in the evening the week of discharge. The urine cleared so that there was only an occasional pus cell, and she was discharged for further care by her family doctor on June 26, 1948.

*Laboratory Data.*—On the day of admission the urine had a specific gravity of 1.016 and 1+ albuminuria, but contained no sugar. Numerous pus clumps were seen on microscopic examination. On June 17 there were 50 to 100 white blood cells per low power field and an occasional clump. On that day urine culture revealed a gram-negative rod of the paracolon group. The hemoglobin value was 11 gm. (76%), and there were 3,680,000 red blood cells and 6,750 white blood cells, with 49% polymorphonuclear leukocytes, 15% basophil cells, 28% lymphocytes, and 7% monocytes. The erythrocyte sedimentation rate was 42 mm. per hour. Electrocardiography revealed no evidence of rheumatic activity or myocardial disease. Intravenous urography revealed no abnormalities of the kidneys.

I saw the patient on Dec. 4, 1949, and Jan. 12, 1950. She still had arthralgia of the cervical spine and some stiffness of the finger joints of the right hand. An electrocardiogram revealed no cardiac pathology and x-ray examination of the cervical spine and hands revealed no arthritic changes. The erythrocyte sedimentation rate and blood cell count were normal. There was no conjunctivitis, and the urine contained no pus, albumin, or sugar.

## COMMENT

*Etiology and Epidemiology.*—No definite cause for this disease has been determined. Reiter [1] found atypical spirochetes in the blood, and Macfie [3] found them in the urethral discharge. Some investigators found high agglutination titers against dysentery organisms and therefore thought that these might be the cause of the disease. However, no dysentery organisms were found in the blood, stool, urethral, or conjunctival secretions. Others found anhemolytic streptococci or enterococci in the blood cultures in some cases. Dienes [7] cultured pleuropneumonia-like organisms from the urethra of a man with urethritis and arthritis. These so-called L-organisms have also been cultured from the vaginas of women with leukorrhea. Beveridge [8] isolated these L-organisms from the urethras of men who had nonspecific urethritis. He believes that this L-organism is normally a saprophytic inhabitant of the female genital tract and that after transfer through sexual contact, it might, under certain conditions of virulence and dosage, cause a pathologic condition in the male. Harkness [9] supports the L-organism hypothesis and states that he has found inclusion bodies in the urethral and conjunctival smears in every one of five cases of Reiter's disease seen by him in a five-year period.

The organism is extremely pleomorphic, changes its shape, and may reproduce by sexual and asexual means. In one form it may be filtered like a virus, and in another it may lead an intracellular parasitic existence. The descriptions and drawings of the organisms found by Reiter and Macfie resemble this pleuropneumonia-like organism. The mode of entry of this organism also is not clear. In cases in which diarrhea is present, entrance through the intestinal tract is likely, the agent then causing damage either to the intestinal wall or to the mucosa. In cases without diarrhea the agent probably enters through the genital tract.

Reiter's disease has been reported from Europe, Africa, the Pacific Islands, and the United States. While almost entirely limited to men in the third and fourth decades, it may occur in women.

*Pathology.*—Biopsies of the knee joints were obtained by Bauer and Engleman,[4] Wepler,[10] and Hollander and his co-workers.[5c] These revealed congested and purplish synovia. Microscopic examinations revealed intense inflammatory reactions limited to the superficial synovial layers, and not involving the supporting collagen, fibrous

7. Dienes, L., and Smith, W. E.: Relationship of Pleuropneumonia-Like (L) Organisms to Infections of Human Genital Tract, Proc. Soc. Exper. Biol. & Med. **50**: 99, 1942.

8. Beveridge, W. I. B.: Isolation of Pleuropneumonia-Like (L) Organisms from Male Urethra, M. J. Australia **2**: 479, 1943.

9. Harkness, A. H.: Cutaneous Manifestations of Gonorrhoea, Brit. J. Ven. Dis. **21**: 93, 1946.

10. Wepler, W.: Zur Morphologie und Pathogenese der post-dysenterischen Polyarthritis, Beitr. path. Anat. **106**: 289, 1942.

connective tissues, or vessel walls. The synovia were thrown into large club-like projections in which the abundant capillaries were all dilated. Each projection was distended by a heavy lymphocytic infiltrate mixed with a few plasma cells and a few neutrophils. No fibrinous exudate was found. The intima was approximately 6 to 10 layers deep. Only a few perivascular collections of lymphocytes and plasma cells could be found. There were no well-defined new capillaries, and the intense hyperemia consisted of dilation of preexisting capillaries.

*Symptoms and Course.*—Diarrhea often precedes by 10 to 30 days the development of the triad of urethritis, conjunctivitis, and arthritis. In fact, the French clinicians hesitate to make the diagnosis unless diarrhea was present. However, the diarrhea is often mild, and unless specifically questioned about diarrhea, the patient may forget to mention it. It is possible that the diarrhea our patient had was not due to the methenamine mandelate she received.

From 10 to 30 days after the enteric phase, conjunctivitis and urethritis appear, one or the other preceding by a day or two. The conjunctivas become hyperemic and edematous, and yellowish mucopurulent discharge appears. Most commonly only conjunctivitis results, but occasionally keratitis, iritis, and iridocyclitis occur. With the onset of urethritis the patient complains of dysuria and frequency, and the urethra discharges a yellow mucopurulent substance. Not infrequently cystitis, prostatitis,[4] and prostatic abscess [5a] have been noted. Colby [5a] described pyelonephritis as a complication. The urethritis and conjunctivitis last throughout the entire course of the disease, with occasional remissions and exacerbations.

As the disease progresses, the weight-bearing joints, particularly the knees and ankle, become involved. Less frequently, the hips, shoulders, wrists, finger joints, and even the vertebras may be affected. The involvement is usually multiple and the arthritis is migratory, as in acute rheumatic fever. Tendovaginitis has been described. The roentgen examination of the joints does not reveal destructive changes. Osteoporosis may develop after four to six weeks. Ankylosis occurs rarely. Hydrarthroses are common, and serous fluid containing equal proportions of polymorphonuclear leukocytes and lymphocytes may be obtained on tapping. Cultures of the joint fluid are usually sterile. During this period the patient has a low-grade fever. There is no anemia as a rule, but there is leukocytosis and the erythrocyte sedimentation rate is increased.

Adenopathy is found frequently, and splenomegaly has been described occasionally. Pleuritis has also been mentioned. In a small proportion of cases, late in the disease, skin lesions appear. They begin as small superficial vesicles, change into small ulcers, and finally heal, leaving hyperkeratotic scars—the so-called keratosis blenorrhagica of nongonorrheal origin. There is a predilection for these lesions over the affected joints, especially in the lower extremities, and over the scrotum and penis. Incomplete syndromes have also been reported. Urethritis and arthritis without conjunctivitis have been reported by Hollander and his colleagues.[5c]

The prognosis for life is excellent. Occasionally extensive ocular injuries occur, and ankylosis may also develop. The disease usually lasts from two to four months. However, relapses are not unusual and may occur over a period of many years. Many types of therapy have been tried, including sulfonamides, penicillin, arsenicals, gold, and fever therapy, all without effect.

SUMMARY

A case of Reiter's disease in a woman that illustrates different features of the disease is described. The earliest symptom is usually diarrhea, followed by urethritis, conjunctivitis, and migratory arthritis. The disease has been reported from Western Europe, America, and the Pacific Islands. The cause of the disease is still obscure, the most likely etiologic agent being a pleuropneumonia-like organism. The portal of entry is either the gastrointestinal or the urethral tract. The prognosis for life is good; permanent ocular and joint lesions, though unusual, may occur.

1749 Grand Concourse.

## MEDIAL APPROACH FOR PARAVERTEBRAL SOMATIC NERVE BLOCK

*Wallace M. Shaw, M.D., Hollis, N. Y.*

The purpose of this paper is to describe a paravertebral approach that provides accurate localization of the needle in relation to the nerve for anesthetic blocking of the thoracic and lumbar spinal nerves. The technique can be termed the medial route for paravertebral somatic nerve blocking. It depends on contacting the lamina of the vertebra at the level of the intervertebral foramen and then redirecting the needle laterally and anteriorly to approach the intercostal or lumbar nerve.

The principal techniques in use at present depend on utilization of a rib or transverse process as the major landmark. In one technique [1] the rib (or in the lumbar region, the transverse process) below the nerve is contacted 4 cm. from the midline and the needle is then redirected cephalad, medially, and anteriorly to parallel the course of the spinal nerve. If the needle deviates even slightly from the proper direction, the anesthetic solution may be deposited outside the fascial plane in which the nerve is located. With better technique the needle may traverse the intervertebral foramen and enter the subarachnoid space. The more accurate the technique the greater the likelihood of subarachnoid injection, either through the intervertebral foramen or the dural sleeve prolonged around the nerve. If the needle enters the dural prolongation, aspiration of spinal fluid may be impossible, and this usual warning is then absent.

In another commonly used technique [2] the rib or transverse process above the nerve to be blocked is contacted, and the needle is redirected caudad, medially, and anteriorly to cross the spinal nerve. This technique reduces the possibility of intraspinal injection, but also decreases the accuracy of the localization and often a large amount of solution must be infiltrated to produce anesthesia.

From the Department of Anesthesia, Prospect Heights Hospital, Brooklyn.

1. Rovenstine, E. A.: Personal communication to the author.
2. Labat, G.: Regional Anesthesia: Its Technic and Clinical Application, ed. 2, Philadelphia, W. B. Saunders Company, 1928.

### TECHNIQUE OF THE MEDIAL APPROACH

*Localization.*—The paravertebral block is most easily performed with the patient prone and a small soft pillow placed beneath the chest so that the scapulas fall forward for thoracic blocks. The operator stands on the side opposite the one to be blocked. The procedure may also be performed with the patient in the lateral recumbent or sitting position.

The anatomical level of the segmental nerve to be blocked is determined. The important area to be localized is the space between the transverse processes, the location of both the intervertebral foramen and the spinal nerve. The intercostal space, if palpable, is followed backward as far as possible and projected medially to a point 1 cm. from the midline. This point overlies the lamina at the level of the intervertebral foramen. If the intercostal space cannot be felt, the vertebral spines are used as a guide. The 1st, 2nd, 3rd, and 12th thoracic nerves are approximately opposite the corresponding vertebral spines. The other thoracic nerves are approximately opposite the spine of the next higher vertebra. In the lumbar area the intervertebral foramens are level with the interspinous spaces.

*Placement.*—At the level of the intervertebral foramen as determined above a skin wheal is raised with anesthetic solution 1 cm. from the midline on the side to be blocked. A 3 in. (7.6 cm.) 22-gage needle is inserted at right angles to the frontal plane until the lamina of the vertebra is contacted (see the accompanying figure). The needle is partially withdrawn, and its point is redirected more laterally until it just slips off the edge of the lamina. The needle is then advanced 1 cm. further. If the needle still contacts bone at an angle of about 45 degrees, it is probably "walking" along a transverse process or rib. In this event the needle is directed either superiorly or inferiorly through the same skin wheal or a new one, and again is probed more and more laterally until bone is no longer contacted. The needle is then advanced 1 cm.

The point of the needle then lies in a triangular space bounded medially by the body of the vertebra, anteriorly by the pleura or peritoneum, and dorsally by the fascial covering of the sacrospinalis muscle. This space contains loose areolar and fatty tissue and the rami communicantes; it is traversed by the spinal nerve and blood vessels. Anesthetic solutions injected into this space are close to the spinal nerve and diffuse readily to produce anesthesia.

*Precautions.*—When the needle has been correctly placed, a careful check should be made of whether the subarachnoid space, pleural cavity, or a blood vessel has been entered, as should be done during paravertebral injections by any route. If spinal fluid or blood is aspirated through the needle, the needle should be withdrawn and the space reentered after about five minutes. If air is aspirated, indicating puncture of the lung, the procedure should be discontinued and the patient carefully watched for development of pneumothorax.

*Injection.*—If no spinal fluid, blood, or air is aspirated, 4 to 7 cc. of anesthetic solution is injected. If more than one nerve must be anesthetized, the first needle should be left temporarily in place to guide placement of the remaining needles.

### ADVANTAGES OF THE MEDIAL APPROACH

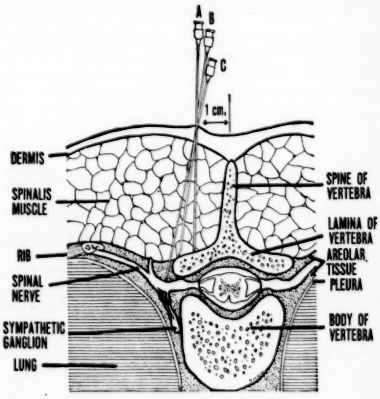
Although it might appear great at first glance, the risk of pneumothorax is really slight with this technique. Exploratory probing is done while the needle is superficial to the vertebral lamina and transverse process, and the needle is not manipulated once contact with bone has been lost. For these reasons the danger of puncturing the pleura is less than with other methods in which the needle is manipulated in soft tissue 3 to 6 cm. from the nearest bony landmark, and the needle traverses a narrow channel bordered by the pleura anteriorly and the intervertebral foramen medially. Even a small anterior deviation can result in perforation of the pleura and lung.

Intraspinal injection is almost impossible by the medial approach, because the needle is directed laterally, away from the intervertebral foramen. However, conceivably a long dural sleeve around the nerve might be pierced. Although this possibility is remote, it must be carefully avoided.

The ease with which spinal nerves may be successfully blocked is a distinct advantage of the medial approach. Superficial and deep bony landmarks are easily identified and accurate placement of the needle is not difficult. Paresthesias along the distribution of the nerve are frequently elicited, indicating proximity to the nerve.

### RESULTS

The medial route has been used in seven patients to anesthetize 33 nerves, with failure to block only two that were reinjected successfully. Effective anesthesia has been possible with as little as 2 cc. of anesthetic solution, denoting accurate placement. The anesthetic agents employed include 2% procaine hydrochloride solution, 0.2% tetracaine (pontocaine®) hydrochloride solution, 5% beta-diethylaminoethyl-para-ethoxybenzoate (intracain®) in oil, 0.1% isoamylhydrocupreine (eucupin®) dihydrochloride plus 3% ethylaminobenzoate ("benzocaine") in oil, and absolute alcohol. There were no instances of pneumothorax, intraspinal puncture, post injection neuritis, or any other complication attributable to the nerve blocking procedure. Entrance of a needle into a blood vessel was easily recognized on two occasions, and in each instance the nerve was blocked a few minutes later without difficulty. Paravertebral somatic nerve block was obtained by the medial route in the following two cases.




Diagrammatic cross section through a thoracic vertebra, showing positions of the needle in blocking the spinal nerve by the medial route. *A*, needle in contact with the lamina. *B*, needle sliding laterally along lamina. *C*, needle in correct position for injection.

### REPORT OF CASES

CASE 1.—This 54-year-old obese white woman had a painful left midthigh stump following amputation for diabetic gangrene. The pain was constant and was aggravated by pressure, prohibiting the use of a prosthesis. Previous infiltration of the stump had given transient relief. Pain was localized in the distribution of the third and fourth lumbar nerves. Butethamine (monocaine®) hydrochloride in oil injected about these nerves by the medial route gave complete relief for two days. Accordingly

these nerves were each blocked with 2 cc. of 2% procaine hydrochloride solution, with immediate relief. Paresthesias were elicited on the first placement of each needle. At each nerve 2 cc. of absolute alcohol were injected. Complete relief lasted during the six months she was followed, and the patient was fitted meanwhile with a comfortable artificial leg.

CASE 2.—A 54-year-old physician suffered from intractable pain due to inoperable carcinoma of the gallbladder, with invasion of the liver and parietal peritoneum. The right 5th to 10th intercostal nerves were blocked by this method, using 4 cc. of isoamylhydrocupreine dihydrochloride in oil at each spinal nerve. Relief was complete, lasting three days. To avoid alcoholic neuritis, alcohol was not injected. Instead, the 6th to 10th intercostal nerves were sectioned in the posterior axillary line, giving relief until the lesion invaded the stomach three weeks later.

SUMMARY

A medial approach for paravertebral injection of spinal nerves is described. This technique depends on contacting the lamina of the vertebra with the needle and redirecting it laterally to the vicinity of the spinal nerve. The method has the following advantages: 1. The subarachnoid space is avoided almost entirely. 2. Localization is extremely accurate, since the bony landmark is very close to the nerve. 3. The technique is easy to perform and is less painful, even in obese patients. 4. Although it is still present, the possibility of causing pneumothorax is minimized.

193-40 McLaughlin Ave.

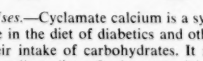
# COUNCIL ON PHARMACY AND CHEMISTRY

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

R. T. STORMONT, M.D., *Secretary.*

**Cyclamate Calcium.**—Sucaryl Calcium (Abbott).—$C_{12}H_{23}CaN_2O_6S_2.2H_2O$.—M.W. 432.57.—Calcium cyclohexylsulfamate.—The structural formula for calcium cyclohexylsulfamate dihydrate may be represented as follows:




*Actions and Uses.*—Cyclamate calcium is a synthetic sweetening agent for use in the diet of diabetics and other patients who must restrict their intake of carbohydrates. It may be used by patients on low sodium diets. Cyclamate calcium is essentially nontoxic, but an excessive intake may produce a laxative effect. This should be controlled by regulation of the amount used in the diet.

*Dosage.*—Cyclamate calcium is used in the form of a 15% solution for the preparation of foods or to sweeten beverages. 1.25 cc. (one-fourth teaspoonful) of a 15% solution is equivalent in sweetening power to about two teaspoonfuls of sugar (sucrose). A bitter taste becomes noticeable when the quantity in foods approaches 0.5%.

*Tests and Standards.*—

*Physical Properties:* Cyclamate calcium is a white, crystalline, practically odorless powder with a very sweet taste. It is freely soluble in water and practically insoluble in alcohol, benzene, chloroform and ether. The pH of a 10% solution is between 5.5 and 7.5.

*Identity Tests:* To 1 ml. of a 15% solution of cyclamate calcium, add 2 ml. of silver nitrate T.S. and mix: a white crystalline precipitate forms.

To 2 ml. of a 15% solution of cyclamate calcium, add 1 ml. of 10% sodium nitrite, shake, and cautiously add sulfuric acid dropwise: a white precipitate forms.

*Purity Tests:* Determine the heavy metals content on 1 gm. of cyclamate calcium as directed in *U.S.P. XIV*, page 717: the turbidity developed does not exceed that of a control containing 20 γ of lead.

Dry about 1 gm. of cyclamate calcium, accurately weighed, for 4 hours at 130°: the loss in weight is not more than 9.5%.

*Assay:* (Nitrogen) Transfer to a semi-micro Kjeldahl flask about 0.1 gm. of cyclamate calcium, accurately weighed. Digest it with 7 ml. of sulfuric acid, 2.7 gm. of potassium sulfate and 0.3 gm. of mercuric oxide for 4 hours. Cool the contents of the flask and add 15 ml. of water. Make the solution alkaline with 40% sodium hydroxide and add 10 ml. of 40% sodium thiosulfate. Distill the ammonia into 20 ml. of 4% boric acid. Using a mixed indicator (1: 5 methyl red T.S. and bromocresol green T.S.), titrate the ammonia liberated with 0.05 *N* sulfuric acid. Each milliliter of 0.05 *N* acid is equivalent to 0.0007004 gm. of nitrogen and 0.009913 gm. of anhydrous cyclamate calcium. The amount of nitrogen present is not less than 6.93 nor more than 7.21%, equivalent to not less than 98.0 nor more than 102.0% of anhydrous cyclamate calcium.

(Calcium) Transfer to a 400 ml. beaker about 0.5 gm. of cyclamate calcium, previously dried at 130° for 4 hours and accurately weighed. Add 10 ml. of diluted hydrochloric acid and 15 ml. of ammonium oxalate T.S., and heat the mixture just to boiling. Add 25 ml. of ammonium hydroxide T.S., continue boiling for 5 min., allow the beaker to stand for 1 hour, then filter the mixture through a sintered glass crucible. Wash the residue with about 200 ml. of water. Transfer the crucible containing the precipitate back to the original beaker, add enough water to cover the crucible and 7 ml. of sulfuric acid, heat the material to 90° and then titrate with 0.1 *N* potassium permanganate. If the temperature of the solution falls below 70°, reheat it before continuing the titration. Each ml. of 0.1 *N* potassium permanganate is equivalent to 0.002004 gm. of calcium and 0.001983 gm. of anhydrous cyclamate calcium. The amount of calcium present is not less than 9.91 nor more than 10.3%, equivalent to not less than 98.0 nor more than 102.0% of anhydrous cyclamate calcium.

**Dosage Forms of Cyclamate Calcium**

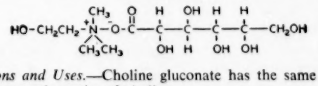
SOLUTION. *Identity Tests:* The solution responds to the identity tests described in the monograph for cyclamate calcium.

*Assay:* (Nitrogen) Transfer to a semi-micro Kjeldahl flask an accurately measured amount of the solution equivalent to about 0.1 gm. of cyclamate calcium. Continue as directed in the assay for nitrogen in the monograph for cyclamate calcium starting with, ". . . and digest it with 7 ml. of sulfuric acid . . ." Each milliliter of 0.05 *N* acid is equivalent to 0.01081 gm. of cyclamate calcium dihydrate. The amount of cyclamate calcium dihydrate present is not less than 95.0 nor more than 105.0% of the labeled amount.

(Calcium) Transfer to a 400 ml. beaker an accurately measured amount of the solution equivalent to about 0.5 gm. of cyclamate calcium. Continue as directed in the assay for calcium in the monograph for cyclamate calcium starting with, "Add 10 ml. of diluted hydrochloric acid and 15 ml. of ammonium oxalate T.S. . . ." Each milliliter of 0.1 *N* potassium permanganate is equivalent to 0.02163 gm. of cyclamate calcium dihydrate. The amount of cyclamate calcium dihydrate present is not less than 95.0 nor more than 105.0% of the labeled amount.

*Solution Sucaryl Calcium:* 118.3 cc. bottles. A solution containing 0.15 gm. of cyclamate calcium in each cubic centimeter. Preserved with 0.1% benzoic acid and 0.05% methylparaben. U. S. Patent 2,275,125. Abbott Laboratories, North Chicago, Ill.

**Choline Gluconate.**—$C_{11}H_{23}NO_8$.—M.W. 299.32.—2-(Hydroxyethyl)-trimethylammonium D-gluconate.—The structural formula of choline gluconate may be represented as follows:




*Actions and Uses.*—Choline gluconate has the same actions and uses as other salts of choline.

*Dosage.*—Adults: orally, 12 to 15 gm. daily in three divided doses. To provide the equivalent of 1 gm. of choline base, 2.46 gm. of choline gluconate is required.

*Tests and Standards.*—

The following tests and standards apply to a 95% sample of choline gluconate, which is commercially unavailable. The commercially available material is a 58 to 62% aqueous solution.

*Physical Properties:* Choline gluconate is a straw colored, highly viscous mass possessing an amine-like odor and a bitter taste. It is soluble in water, sparingly soluble in alcohol, very slightly soluble in ether, and practically insoluble in benzene and chloroform. The pH of a 50% solution is between 5.0 and 6.0.

*Identity Tests:* To 1 ml. of 10% choline gluconate add 5 ml. of mercuric potassium iodide T.S.: a pale yellow precipitate forms.

Add 1 ml. of 1% choline gluconate to 2 ml. of a cobaltous chloride solution (U. S. P. test solution diluted 1:25). Add 2 ml. of 2% potassium ferrocyanide: an emerald green color develops immediately.

V 1
195

To 1 ml. of ferric chloride T.S. add 1 ml. of 10% choline gluconate: an intensification of the yellow color occurs.

To 5 ml. of a 10% solution of choline gluconate add 0.5 ml. of glacial acetic acid and 1 ml. of freshly distilled phenylhydrazine. Heat on the steam bath for 30 min., allow the solution to cool and scratch the inner surface of the glass container: the crystals of gluconic acid phenylhydrazide formed, recrystallized twice from alcohol, melt between 199 and 202°.

*Purity Tests:* Accurately weigh about 0.5 gm. of choline gluconate and determine the water content by the Karl Fischer method (*U. S. P. XIV*, page 795). The amount of water present is less than 5%.

Ash about 1 gm. of choline gluconate, accurately weighed: the residue is less than 0.05%.

*Assay:* (Choline Gluconate) Accurately weigh about 0.2 gm. of choline chloride, U. S. P. Reference Standard, into a 100 ml. volumetric flask and make up to the mark with water. Transfer 4, 6, 8 and 10 ml. portions of the solution to separate test tubes, to each tube add 5 ml. of a freshly prepared and filtered saturated solution of ammonium reineckate (about 0.15 gm.:5 ml.), shake the tubes and allow them to stand for 20 min. Filter the mixtures with suction, collecting the precipitates in fritted glass funnels. Wash the precipitates with 5 ml. portions of ice-cold water until the filtrates are colorless and then with two 2 ml. portions of ice-cold alcohol. Continue drawing air through the filter funnels until the precipitates are dry. Place test tubes under the stems of the funnels in the suction flasks and, with the aid of suction, wash the precipitates into the test tubes with three 5 ml. portions of acetone. Transfer the filtrates to 25 ml. volumetric flasks, rinse the test tubes with acetone, make up the solutions to 25 ml. with acetone and shake. Measure the light absorptions at 5260 A. with a spectrophotometer, using acetone as a blank. Plot absorptions versus concentrations to give a standard curve. Accurately weigh into a 100 ml. volumetric flask about 0.3 gm. of choline gluconate and dilute to the mark with water. Transfer 10 ml. of the solution to a test tube and proceed as before. Read the concentration of choline chloride from the standard curve. Each gram of choline chloride is equivalent to 2.144 gm. of choline gluconate. The amount of choline gluconate present is not less than 95.0 nor more than 105.0%.

**Dosage Forms of Choline Gluconate**

SOLUTION (58-62%). *Assay:* From 10 ml. of the choline gluconate solution prepare an aqueous solution whose final concentration is about 3 mg. per milliliter. Transfer 10 ml. of this solution to a test tube and carry out the spectrophotometric determination described in the monograph for Choline Gluconate starting with, ". . . add 5 ml. of freshly prepared and filtered saturated solution of ammonium reineckate . . ." The amount of choline gluconate present is not less than 90.0 nor more than 110.0% of the labeled amount.

*Solution Choline Gluconate:* 473 cc. bottles. A flavored solution containing 0.62 gm. of choline gluconate in each cubic centimeter. Commercial Solvents Corporation, New York.

# COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

*The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.*

RALPH E. DE FOREST, M.D., *Secretary.*

## MICROTONE HEARING AID, MODEL T612, ACCEPTED

Manufacturer: The Microtone Company, Ford Parkway on the Mississippi, St. Paul 1.

Microtone Hearing Aid, Model T612

The Microtone Hearing Aid, Model T612, an electrical instrument with air conduction receiver, measures (excluding hinge, clothing clip, and control) 73 by 57 by 20 mm. and weighs 82 gm. With batteries, receiver, and cord, the total weight is 150 gm.

The instrument was tested in a laboratory acceptable to the Council and was found to satisfy the minimum requirements of the Council for acceptance of hearing aids. The Council on Physical Medicine and Rehabilitation voted to include the Microtone Hearing Aid, Model T612, in its list of accepted devices.

## UNEX HEARING AIDS, MODELS 200 AND 230, ACCEPTED

Manufacturer: Nichols and Clark, Hathorne, Mass.

The Unex Hearing Aids, Models 200 and 230, are electric hearing aids housed in metal cases. The smaller, Model 200, measures 53 by 40 by 18 mm. without the clothing clip. The complete assembly with batteries, cord, and receiver weighs 73.5 gm. The

200 230

Unex Hearing Aids, Models 200 and 230

larger, Model 230, measures 69 by 40 by 18 mm., and the assembly with batteries, cord, and receiver weighs 91 gm. Like many other recent instruments, the Unex dispenses with a tone control.

Tests in a laboratory acceptable to the Council gave evidence that this instrument satisfied the minimum requirements of the Council for acceptance of hearing aids. The Council on Physical Medicine and Rehabilitation voted to include the Unex Hearing Aids, Models 200 and 230, in its list of accepted devices.

## ZENITH HEARING AID, MODEL "SUPER-ROYAL," ACCEPTED

Manufacturer: Zenith Radio Corporation, 5801 W. Dickens Ave., Chicago 39.

Zenith Hearing Aid, Model "Super-Royal"

The Zenith Hearing Aid, Model "Super-Royal," is an electrical instrument conventional in shape and design but designed for wearers with severe impairments of hearing who need and can tolerate a high acoustic output. It is equipped for both air and bone conduction. Its dimensions, excluding clothing clips, are 113 by 59 by 23 mm. With batteries, cord, and receiver it weighs 251 gm.

Evidence from tests in a laboratory acceptable to the Council showed that this instrument performed as represented by the manufacturer and that it satisfied the minimum requirements of the Council for acceptance of hearing aids. The Council on Physical Medicine and Rehabilitation voted to include the Zenith Hearing Aid, Model "Super-Royal," in its list of accepted devices.

## CLEARTONE HEARING AID, MODEL 700, ACCEPTED

Manufacturer: American Sound Products, Inc., 1303 S. Michigan Ave., Chicago 5.

The Cleartone Hearing Aid, Model 700, is an electrical instrument housed in a metal and plastic case that measures 20 by 64 by 65 mm. It has air conduction or bone conduction earphones. With plastic-coated cord and with batteries, the assembly weighs 167 gm.

Tests in a laboratory acceptable to the Council showed that this instrument satisfied the Council's minimum requirements for acceptance of hearing aids. The Council on Physical Medicine and Rehabilitation voted to include the Cleartone Hearing Aid, Model 700, in its list of accepted devices.

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## TRANSMISSIBLE LEUKEMIA IN MICE

Gross [1] of the Veterans' Administration Hospital, Bronx, N. Y., reports experimental evidence suggesting that "spontaneous" leukemia in mice is a virus disease. He had available for these experiments two different inbred strains of mice, one of which was essentially free from the disease. Through 16 generations this strain had not shown a single case of leukemia, while in 70% of the females of the second strain "spontaneous" leukemia developed after the mice were 7 months of age.

In a typical experiment, fragments of spleen and enlarged lymph nodes of the leukemic mice were emulsified in 4 vol. of isotonic salt solution and then centrifuged for 15 minutes at 3,000 rpm. Newborn young of the nonleukemic strain less than 12 hours old were each given injections subcutaneously or intraperitoneally with 0.1 cc. of the resulting supernatant fluid. Of 14 young mice thus injected, leukemia developed in 7 at 8 to 11 months of age, and 5 others died later of leukemia.

In a refinement of this technique, samples of the leukemic supernatant fluid were passed through a Seitz filter. The resulting filtrate was injected subcutaneously in 0.1 cc. doses into 25 nonleukemic suckling mice less than 12 hours old. In 7 of these, "spontaneous" leukemia developed at 6½ to 9 months of age; the 18 remaining mice, now 7 to 9 months old, are still under observation.

Tests were also made of the possibility of transplacental transmission of the leukemic agent. Five pairs of mice of the nonleukemic strain were given injections during infancy with the filtrable agent and afterward mated during early adult life. Of these 10 mated adults, leukemia subsequently developed in 7. Of the 27 offspring born to these preleukemic parents, 13 died of leukemia at 14 to 20 months of age. The latent leukemia agent in the tissues of the young adult parents was therefore transferred in effective doses to the unborn young.

The simplest means of explaining these findings would be to assume that "spontaneous" leukemia in mice is a virus disease, which remains latent during vigorous early adult life. Another theory might picture the leukemic agent as causing mutation of certain embryonic or early postembryonic tissue cells.

1. Gross, L.: "Spontaneous" Leukemia Developing in C3H Mice Following Inoculation, in Infancy, with AK-Leukemic Extracts, or AK-Embryos, Proc. Soc. Exper. Biol. & Med. **76**: 27 (Jan.) 1951; Pathogenic Properties, and "Vertical" Transmission of the Mouse Leukemia Agent, ibid. **78**: 342 (Oct.) 1951.

## CAT SCRATCH DISEASE

Debré and his associates [1] reported in 1950, under the title "La maladie des griffes de chat," a hitherto undescribed clinical entity. The disease was seen most frequently in children and occasionally in adults. It was characterized by subacute lymphadenitis which frequently suppurated and healed without a scar. The course of the disease was usually mild but occasionally, particularly in adults, was accompanied by mild fever and painful adenopathy. The adenopathy was usually preceded by a small maculovesicular skin lesion. The patients often had a history of being scratched by a cat. Microscopic studies of the involved lymph node revealed formation of nodules composed of reticular cells and of a central necrosis. Attempts at identifying the causative agent have been unsuccessful. The infection apparently was not caused by bacteria or spirochetes, nor did it appear to be an anomalous type of tularemia or of lymphogranuloma venereum, both of which it resembled very closely.

At about the same time Mollaret and his associates [2] at the Claude Bernard Hospital in Paris reported eight similar cases. Somewhat later Mollaret and co-workers [3] reported on 42 cases of their own and on 58 cases gathered from various cities in France. Histological studies made by this group revealed the process as a reticular hyperplasia, which may remain stationary or regress, and which frequently progresses to formation of necrotic foci and microscopic abscesses and to suppuration with periadenitis and formation of abscesses. Mollaret considered the disease to be essentially a benign reticulocytosis caused by inoculation. The disease was seen sporadically and at times as a small familial epidemic. Thus Lemaire and Debray [4] reported five cases occurring in a family of six, and the Mollaret group recorded a similar familial incidence. The family had a cat in the Lemaire and Debray group but there was no history of scratches. Of the 42 cases reported by Mollaret and his associates,[3] in only 19 was there a history of a cat scratch, and 2 were bitten by a cat. In one patient there was a history of a puncture of the skin by a fragment of bone, one suffered a skin abrasion while dressing a pig; in one an abrasion was caused by a thorn, and in another by a splinter of wood. In five there was a cat on the premises but no history of scratching, while in eight instances there was no contact whatsoever with a cat. The fact that veterinarians have not seen this disease in cats and that intradermal tests with the particular antigen are negative suggests that the role of the cat in the infection is a passive one. The particular virus, according to Mollaret, is probably widely distributed in plants and vegetable life.

1. Debré, R., and others: La maladie des griffes de chat, Semaine hôp. Paris **26**: 1895-1904 (May 30) 1950.

2. Mollaret, P.; Reilly, J.; Bastin, R., and Tournier, P.: Sur une adénopathie régionale subaiguë et spontanément curable, avec intradermoréaction et lésions ganglionnaires particulières, Bull. et mém. Soc. méd. hôp. Paris **66**: 424-449 (March 24-31) 1950.

3. Mollaret, P.; Reilly, J.; Bastin, R., and Tournier, P.: Documentation nouvelle sur l'adénopathie régionale subaiguë et spontanément curable décrite en 1950: La lymphoréticulose bénigne d'inoculation, Presse méd. **58**: 1353-1355 (Dec. 2) 1950.

4. Lemaire, A., and Debray, J.: Sur une épidémie familiale d'adénite subaiguë bénigne de nature inconnue, Bull. et mém. Soc. méd. hôp. Paris **66**: 375-378 (March 10-17) 1950.

The disease is frequently confused with tuberculous cervical adenitis, tularemia, lymphogranuloma venereum, infectious mononucleosis, sarcoidosis, sodoku, and Hodgkin's disease. The adenopathy is oftener single than multiple and is always unilateral. It usually resolves itself in a few weeks whether treated or not. The blood picture does not undergo much change. There is no involvement of viscera and the spleen is not enlarged. Aureomycin and terramycin appear to be effective in shortening the course of the disease and in preventing suppuration of involved nodes. Mollaret, however, expresses doubt as to effectiveness of the antibiotics, because some mild cases do not go on to suppuration, even when not treated.

This particular clinical entity was recognized in this country by Foshay of Cincinnati about 20 years before the above-mentioned workers. In the course of his studies of tularemia Foshay had recognized this particular entity and had even prepared an antigen from the pus of an involved lymph node that gave positive reactions on intradermal injection. This antigen was prepared according to the principles of the Frei test for lymphogranuloma venereum. Foshay did not report these observations; however, he had informed Debré of his discoveries when the latter visited the United States in 1947 and had given him a supply of his antigen.

Hanger and Rose of New York have prepared a similar antigen from pus aspirated from a paronychia Hanger had contracted while gardening. There was a cat in the household but no history of a scratch. The paronychia was followed later by a suppurative regional adenitis accompanied with fever and constitutional symptoms. The antigen prepared from the pus gave an intense intradermal reaction in Hanger and also in patients previously studied by Foshay.

Greer and Keefer [5] reported one case in which there was a history of a cat scratch. In the 12 patients reported by Daniels and MacMurray,[6] there was a history of more or less intimate contact with cats; 7 patients had been scratched and 1 was bitten. Five of the patients had a primary lesion at the site of inoculation. The lymphadenopathy was evident in 18 to 21 days after the development of the initial lesion. The course of the disease was mild. There were chills or chilliness, headache, and generalized aching in some of the patients. The Hanger-Rose test was positive in all. The antigen material was supplied by Foshay, Mollaret, and Debré. The intradermal test was negative in the contacts. Patients with lymphogranuloma venereum, Hodgkin's disease, leukemia, tuberculous cervical adenitis, and tonsillitis with cervical adenopathy all gave negative responses to the intradermal test.

Mollaret and his collaborators [7] have announced in a recent communication the discovery of the particular virus causing the disease. They have succeeded in transmitting the disease to one out of four volunteers. They have further succeeded in transmitting the disease to Cercopithecus ethiops sabeus monkeys by intracutaneous inoculation of emulsions made from infected lymph nodes from two patients. The animals showed a primary lesion at the site of injection in 28 to 54 days and enlarged regional lymph nodes in 36 to 63 days after inoculation. The intradermal reaction was positive in 48 hours in one monkey on the 64th day after infection. Histological studies of the skin lesions and of the lymph nodes in both man and monkeys revealed, when stained with Giemsa stain, basophilic granules within reticulocytes, plasma cells, and lymphocytes. These granules were somewhat smaller than the eosinophilic and basophilic granules ordinarily seen. They were numerous in early lymph node lesions, particularly in the reticulocytes bordering on a necrotic zone. Mollaret considers these "granulocorpuscles" a visible form of the causative virus. These interesting observations require further study for their confirmation.

## CORTISONE IN MYOCARDIAL INFARCTION

Johnson and co-workers [1] have reported that the administration of cortisone following ligation of a branch of the coronary artery in dogs results in a pronounced decrease in the size of the myocardial infarct produced. In their experiment the anterior descending branch of the left coronary artery was ligated just below the origin of the circumflex branch in 14 dogs. Seven of these animals were given cortisone in doses of 12.5 to 20 mg. twice daily for 14 to 22 days, starting on the day of ligation. The remaining seven received no cortisone. Two or three weeks after operation the hearts of all the animals were examined grossly and microscopically. In the cortisone-treated animals the infarcts were approximately 1/7 the size of those in the control animals. Microscopically, the infarcts in the cortisone-treated animals showed a decrease in fibroblastic proliferation and a sharp line of demarcation between the damaged and healthy myocardium. Moreover, the degree of cardiac embarrassment during life, as gaged by fatigability, loss of appetite, and loss of interest in surroundings, was significantly less in the treated dogs than in the controls. While the doses of cortisone used reduced the number of postoperative pericardial adhesions, they did not interfere with wound healing. Further studies are being carried out to determine the late results of cortisone administration in experimental coronary occlusion.

Whether these observations have clinical application in man remains to be demonstrated. The use of cortisone in patients with myocardial infarction would involve some risk because of the tendency of this compound under certain circumstances to produce retention of sodium and water, thus increasing the load on the heart. This hazard, along with those of aggravating preexisting hypertension or of increasing a tendency to thrombosis, would have to be balanced against any potential benefit to be derived from the drug.

5. Greer, W. E. R., and Keefer, C. S.: Cat-Scratch Fever: A Disease Entity, New England J. Med. **244**: 545-548 (April 12) 1951.

6. Daniels, W. B., and MacMurray, F. G.: Cat-Scratch Disease: Non-bacterial Regional Lymphadenitis, A. M. A. Arch. Int. Med. **88**: 736-751 (Dec.) 1951.

7. Mollaret, P.; Reilly, J.; Bastin, R., and Tournier, P.: La découverte du virus de la lymphoréticulose bénigne d'inoculation: Inoculation expérimentale au singe et colorations, Presse méd. **59**: 701-704 (May 23) 1951.

1. Johnson, A. S.; Scheinberg, S. R.; Gerisch, R., and Saltzstein, H. C.: Effect of Cortisone on Experimentally Produced Myocardial Infarction, Harper Hosp. Bull. **9**: 187 (Nov.-Dec.) 1951.

# ORGANIZATION SECTION

## STATEMENT BY THE BOARD OF TRUSTEES

### NATIONAL DOCTORS COMMITTEE FOR IMPROVED FEDERAL MEDICAL SERVICES

It is apparent from a recent influx of correspondence inquiring about the activities of the National Doctors Committee for Improved Federal Medical Services that the position of the American Medical Association with regard to the medical recommendations of the Hoover Commission requires amplification.

Individual physicians in the United States and, more recently, their wives have received letters and brochures from the Doctors Committee, an affiliate of the Citizens' Committee for the Hoover Report. These letters urge individual and collective political pressure to force hearings on legislation pending in the Congress that would effect the medical recommendations of the Hoover Commission. In some instances it has been assumed that the American Medical Association is joining in this effort. This is not the case.

During the 81st Congress a bill (S. 2008) was introduced that sought to accomplish the medical recommendations of the Hoover Commission. Dr. Walter B. Martin, a member of the Board of Trustees, testified on behalf of the American Medical Association in opposition to this bill before the Senate Committee on Labor and Public Welfare, on July 11, 1950.

Substantially similar bills (S. 1140 and H. R. 3688) were introduced in the 82d Congress to carry out the same purposes as embodied in S. 2008, 81st Congress. On April 13, 1951, the Committee on Legislation of the American Medical Association voted to disapprove these measures. This action was later approved by the Board of Trustees.

In response to an invitation from the National Doctors Committee, representatives of the American Medical Association met with representatives of that committee and others in New York in June 1951, for the purpose of reconciling the divergent views concerning this legislation. At that conference representatives of the National Doctors Committee indicated orally that they would be agreeable to suggested amendatory legislation that would incorporate the majority of the suggestions presented by the American Medical Association. A revised bill was subsequently prepared and submitted to the Association for consideration.

After a careful study of the substitute proposal, the Committee on Legislation voted to oppose the measure at its meeting in Los Angeles, Dec. 4, 1951. The Committee noted that, while certain minor changes suggested by the Association had been made, the revised bill still provided for the transfer to the new department of health of the military and Veterans Administration hospitals —a transfer opposed by the American Medical Association.

The Board of Trustees on Dec. 6, 1951, approved the action of the Committee on Legislation and again reiterated its hope that economy could be effected in the operation of the federal medical services. It restated its belief that such economy could be best accomplished by coordination of the several hospital systems, providing for joint use of available beds and joint planning in the field of hospital construction, and that a central hospital board with authority to adjust the hospital program to the needs of the services could gain the end desired without a consolidation of professional personnel.

The disagreements between the Association's position and either S. 1140 or the alternative measure proposed by the Doctors Committee are basic and divergent.

## NEW SURVEY OF COLLEGE HEALTH SERVICES

In 1936, the Bureau of Medical Economics (Rosco G. Leland, M.D., Director) of the American Medical Association reported the results of a comprehensive survey of the health services of 255 colleges and universities in a 187-page book, "University and College Student Health Services." This survey concerned the nature and extent of health programs, their origin and growth, present status, and certain related problems.

The results of a second survey of college health services have recently been published as Bulletin 88 of the Bureau of Medical Economic Research of the American Medical Association. This study, "Second Survey of University and College Health Services: 1949-1950," is based on returns from 462 colleges of the 1,124 to which questionnaires were sent in May, 1950, requesting data for the academic year 1949-1950. A copy of Bulletin 88 may be obtained from the Bureau of Medical Economic Research, American Medical Association, 535 N. Dearborn St., Chicago 10.

Great variation was noted in the services, personnel, and facilities available to students in these colleges; this may be largely due to the differing needs of students in varying types of colleges and communities. Data on routine health examinations, medical treatment for ambulatory and bed patients, surgery, and special services are reported by sex and number of students admitted, type of control, and staff of health service. It was found that the larger colleges provided more inclusive health services for their students, probably because these colleges more frequently had at least one full-time physician on the health service staff.

Services for faculty and other employees were rarely reported. Only 37% of the colleges reported care for ambulatory patients. Since most of the faculty and other employees are living in their own homes and are often protected by private or college-sponsored health insurance plans, their health needs are frequently met outside the scope of the college health service itself; rather, they are treated as citizens of the community in which they reside.

Student health services are usually financed by a separate fee or by a fee included in tuition or student fees. Required insurance by an outside carrier was rarely reported. Seventeen colleges required insurance of students, and 52 colleges offered it as optional. Insurance was required of faculty in five colleges and of other employees in three colleges. Optional insurance coverage is available to faculties of 147 colleges and to other employees of 114 colleges.

The college health service influences the student's concepts of the importance of good medical care through contacts with the health service personnel and the utilization of the facilities provided. Many students receive these health services through the operation of some kind of prepayment "health insurance plan," to which the student contributes a part of the cost through the payment of fees to the college. This experience may influence his later concepts of the costs of medical care and his evaluation of the merits of various types of health insurance. The college health service is, therefore, an educational influence.

Although this study is incomplete, it should be of interest to college administrators, health service personnel, and physicians, particularly those living in college communities. It is the responsibility of these persons to evaluate the obligations of the college health service to the students, faculty, and other employees.

## STATE MEDICAL LEGISLATION

### Arizona

**Bills Introduced.**—H. C. M. 1, proposes to direct the Arizona legislature to request federal legislation to make available to the state of Arizona sufficient federal funds to adequately provide hospitalization and care of persons from other states who come to Arizona seeking relief from **tuberculosis.** H. 190, proposes to provide for the appointment of a director of the state department of health, such person to be a reputable physician licensed to practice in the state, a holder of a degree of doctor of medicine from a medical school recognized by the **Council on Medical Education and Hospitals of the American Medical Association,** and a person of at least five years' experience in full-time administration of a department of public health or three years' experience plus a degree from an accredited school of public health.

### Kentucky

**Bills Introduced.**—S. 128, proposes to authorize a coroner to perform an **autopsy** when necessary or to appoint a physician to perform such autopsy. S. 140, proposes the creation of a **department of mental health** and sets forth the powers, duties and functions of such a proposed department.

**Bill Enacted.**—H. 62 was approved February 7, 1952. It amends the Kentucky law relating to **narcotic drugs** by providing, among other things, that any person who sells, administers or dispenses narcotic drugs to persons under 21 years of age shall be guilty of a felony.

### Michigan

**Bills Introduced.**—H. 358, proposes to repeal the **basic science law.** S. 251, proposes to amend the **basic science law,** by among other things, eliminating hygiene and public health from the list of basic science subjects and by exempting interns and residents who are training in Michigan hospitals from the operation of the law.

### Mississippi

**Bills Introduced.**—H. 228, proposes the enactment of a modern **rabies** control law. H. 272, proposes that applicants for drivers license shall furnish a certificate from a licensed physician, registered nurse, or reputable hospital as to his **blood type** and proposes that such blood type be entered on the person's driver's license when issued. S. 268, proposes to authorize the board of trustees of state institutions to provide **nursing scholarships** for student nurses.

### New York

**Bills Introduced.**—A. 840, A. 1110, S. 1054 propose the creation of **a** temporary state commission to make a comprehensive study and investigation of all of the problems arising from or in connection with the care, protection, and treatment of **mentally ill persons** in public and private hospitals and institutions, with special emphasis on the need for the **use of jackets and other mechanical restraints** presently used and other techniques and practices presently employed in connection with the care and treatment of such patients with the view and for the purpose of recommending the abolition of the use of such jackets and restraints, if found feasible, and for the purpose of recommending such improvements and such techniques and practices as may be deemed necessary. A. 848, proposes the creation of a temporary commission to investigate and study the need for an **annual health examination** of each resident of the state. A. 1030, and S. 899 to amend the **mental hygiene law,** propose, among other things, that no person, association or corporation shall establish or maintain an institution for the care, custody or treatment of persons who are mentally incompetent without first obtaining a license therefor. A. 842, A. 1111, S. 1058 propose to direct the department of mental health to conduct **mental health research programs.** A. 1214, to amend the **physiotherapy** law, proposes to authorize applicants for a license to practice physiotherapy to temporarily practice such activities for a period of six months during the pendency of their application for a license. A. 1234, proposes to require every **physician to immediately give notice** to the health officer of the county, city, town or village where the patient resides of every case of **cancer** or other malignant tumor under his care. A. 1394 and S. 1173 propose the establishment of 50 state **scholarships** to be awarded **to registered professional nurses** for the purpose of advanced education in teaching or administration of nursing. A. 1405 and S. 1174 propose the creation of 500 **scholarships to attendants at schools of nursing** approved by the Regents for the training of registered professional nurses. A. 1436 and S. 1322 propose that physicians who are on the staff of and actually perform services as often as twice monthly at a free clinic, dispensary or outpatient unit operated by or affiliated with a hospital maintained in whole or in part by a municipality of the state, may have an **additional personal exemption** of $2,500, so far as his individual income tax return is concerned. A. 1446 and S. 1493 to amend the workmen's compensation law, propose to require **physicians and medical consultants** to furnish to claimants, or their authorized representatives, copies of every report of examination, finding and opinion made by such physician and medical consultant with respect to the claimant. A. 1647, to amend the education law, proposes the creation of a **state board of physiotherapy examiners.** A. 1723, proposes that no person, firm or corporation owning and operating a hospital shall permit the use of an ambulance for the transportation to such institution of sick or wounded persons unless there is in attendance upon such ambulance at all times a **duly qualified physician or intern** who is a member, or connected with the staff, of the institution. A. 1731 and S. 1477, to amend the education law, proposes the creation of a **state board of chiropractic examiners** and defines chiropractic as the science of locating and the removing of nerve interference of the human body according to chiropractic principles where such interference is the result of or related to misalignment of subluxations of the vertebral column. It excludes operative surgery, the reduction of fractures, the prescription or use of drugs or medicines, and the practice of obstetrics. A. 1796 and S. 1594 propose that every membership corporation maintaining a hospital, infirmary, dispensary, or the like, shall be liable for damages for personal injuries alleged to have been sustained by any person by reason of the negligence or **malpractice of a physician, surgeon, or nurse** while engaged in practicing his profession in such institutions. A. 1977, proposes to direct the **fluoridation of public water supplies** and storage reservoirs after consultation with the commissioner of health and recognized medical and dental authorities. A. 2003 and S. 1700 propose to make municipal corporations liable for the **malpractice of resident physicians, interns and other licensed physicians** rendering services without compensation in a public institution or in the course of a home care service maintained by such institution. A. 2255 and S. 1608 propose to authorize the state comptroller to contract for the furnishing of **medical and surgical services** and hospital services for state employees. A. 2270, proposes regulations for the licensing of operators of shoe fitting **fluoroscopy apparatus.** A. 2288, proposes to make it unlawful for any public or semipublic hospital to refuse to permit any physician or surgeon duly licensed in the state to diagnose, treat or operate on any patient in such hospital or **refuse admission to any such hospital** of any patient who has been recommended to be sent to or has been sent to such hospital by any such physician or surgeon. S. 778, proposes the creation of a **consumers bureau** in the state department of health for the purpose of protecting the consumer in the manufacture and sale of adulterated or misrepresented food, drugs, cosmetics, or health devices. S. 1037, proposes that any person who has been granted a license by the state of New York to practice a profession who, upon being called before a grand jury to testify concerning any of his professional acts not covered by the laws of professional secrecy, refuses to sign a waiver against subsequent criminal prosecution or to answer any relevant questions concerning such matters shall **forfeit his professional license** and the same shall be revoked forthwith by the licensing authority at the suit of the district attorney at whose instance the person was called before the grand jury. S. 1082, proposes to authorize subscribers to medical care plans to have the **choice of any duly licensed physician,** whether or not such physician is designated or approved by the corporation. The proposal would further require that all duly licensed physicians would be eligible to participate in the plan. S. 1185, proposes to require that any hospital which is not properly equipped and staffed with a **resident anesthetist,** for the purpose of administering anesthetics at all times, shall be ineligible to receive any payment for hospital care or medical expense indemnity from a nonprofit hospital service corporation, notwithstanding any other provision of the law. S. 1214, proposes to prohibit the **refilling of any prescription for a barbiturate** or any other hypnotic or somnifacient drug unless the prescription includes a statement by the prescriber that it may be refilled and specifying the minimum interval between fillings and the total number of refillings prescribed. S. 1390, to amend the labor law, proposes to require every trade, industry or occupation wherein fifty or more persons are employed to establish a **first-aid station** under the charge of a competent person whose sole duty shall be to provide aid for injuries received during employment. S. 1544, proposes the creation of a committee to make studies and carry into effect a program of research to aid in finding a cure for **poliomyelitis.** S. 1550, to amend the education law relating to **eye and ear tests of school children,** proposes that such tests be made twice rather than once each year and that reports of defects be given without delay to the principal of the school and the parents of the child. S. 1587, proposes to **exempt from taxation** property belonging to a medical or dental society. S. 1614, to amend the public health law, proposes regulations for the care, treatment, guidance and rehabilitation of **narcotic drug users.** S. 1675, proposes regulations for the **conduct of public hospitals** and provides, among other things, that it shall be unlawful for any hospital corporation to be the vendor of medical diagnosis or treatment. Such hospitals, however, may employ physicians under a contract or salary arrangement for the rendition of medical care to patients only when such diagnosis and treatment is a public charge. In all other cases the medical diagnosis shall be rendered to patients independently of any hospital charges and under contractual relationship between the patient and the physician. S. 1739, proposes to require chauffeurs or operators, before having their license renewed to present a certificate from a duly licensed physician attesting that the applicant has been examined and found **mentally and physically competent to operate a motor vehicle.** S. 1753, proposes that the officers, superintendents, and the like which refuses to employ a physician, intern, or nurse or permit such person to use the hospital facilities solely because of **race, color, creed, or religion** shall be guilty of a misdemeanor. S. 1975, proposes the creation of a temporary commission to study the feasibility of having a **free choice of physicians** in any nonprofit medical, dental, indemnity, or hospital service corporations plan. S. 1997, proposes an appropriation to the department of health for the purpose of conducting experiments in cooperation with the medical society of New York State and mass detecting diseases through the process of **multiphasic screening.** S. 2005, proposes regulations for the control of **nurses' registries.**

**Bill Enacted.**—S. 277 has become Chapter 8 of the Laws of 1952. It provides regulations for the compulsory care, treatment, guidance, and rehabilitation of **adolescent drug users.**

### Pennsylvania

**Bill Introduced.**—S. 883, proposes to authorize the issuance of **chiropractic** licenses by the state board of chiropractic examiners to certain persons who hold licenses in drugless therapy, under certain circumstances.

Prepared by the Bureau of Legal Medicine and Legislation.

# MEDICAL NEWS

## CALIFORNIA

**Symposium on Infertility.**—This symposium will be given at the regular meeting of the San Francisco Medical Society in its headquarters building March 4, at 8:15 p. m. Physicians speaking by invitation are Dr. Ernest W. Page, associate professor of obstetrics and gynecology at the University of California Medical School, Berkeley, and Dr. Juan F. Aycinena, clinical instructor in surgery (urology), Stanford University School of Medicine, San Francisco.

**Dr. Geiger Leaves San Francisco.**—After about 20 years of service as director of public health of the City of San Francisco, Dr. Jacob C. Geiger has resigned effective March 1 to undertake similar work in the department of public health in the city of Oakland. The San Francisco Medical Society credits him with having developed one of the most efficient emergency systems in the United States. Dr. Geiger also developed an outstanding ambulance service, placing ambulances in strategic positions throughout the city so they would be available within a few minutes to meet emergencies. He developed a two-way radio system in these ambulances. He had under his supervision about 2,350 public health department employees. Dr. Geiger was responsible also for the operation of hospitals connected with the city, in which there are about 4,000 beds.

## DISTRICT OF COLUMBIA

**Grants for Care of Advanced Cancer Patients.**—George Washington University has received from the Alexander and Margaret Stewart Fund two grants designed to help and comfort persons suffering from incurable cancer. One grant of $25,000 was awarded for home care of patients too ill to come to the clinic for treatment but not ill enough to require hospital care. An additional $20,184 has been awarded for research to evaluate methods of treating cancer patients who are beyond help by routine surgical or x-ray therapy. Both grants will continue projects in progress previously supported by the Stewart Fund at The George Washington University Cancer Clinic under the direction of Dr. Calvin T. Klopp. Under the home care program patients able to pay and those unable to pay for service receive visits from physicians and nurses, necessary medicines, appliances and housekeeping aid arranged for by the clinic's social service worker.

## ILLINOIS

**Mumps in Illinois.**—Among the more prevalent of the communicable diseases in Illinois at present is mumps, according to the State Department of Public Health. From 300 to 400 cases are currently being reported in the state each week. Out of a total of 858 cases recorded up to Jan. 19, only 230 were from Chicago. Ordinarily from 6,000 to 8,000 cases occur in Illinois each year.

### Chicago

**Society News.**—At the annual meeting of the Chicago Dermatological Society in January Dr. James R. Webster, was elected president, Dr. John M. McCuskey, Peoria, vice-president, and Dr. Irene A. Neuhauser, secretary-treasurer.

**Grants for Research.**—The Hektoen Institute for Medical Research of the Cook County Hospital has received a grant of $4,428 from the U. S. Public Health Service for a cancer control project entitled "Investigation as to the Incidence of Operable Carcinoma of the Stomach at Autopsy" under the direction of Dr. Frederick Steigmann. A grant of $12,420 was also received from the Commercial Solvents Corporation for the study of rheumatoid arthritis. This work will be done under the supervision of Dr. Eugene F. Traut and associates.

**Progress Report on the Medical Center.**—Construction of new facilities now nearing completion has increased the investment in the 305-acre medical center district on Chicago's Near West Side to $155 million, $55 million more than five years ago, according to Dr. Walter H. Theobald, president of the medical center commission. Present facilities include three medical schools, two dental schools, two schools of nursing, a school of pharmacy, a graduate college, a postgraduate school of medicine, a school of mortuary science, three hospitals, and five institutes and laboratories devoted primarily to research. Nine new projects are under construction: (1) the 500-bed Veterans Administration hospital and the Veterans Administration regional office building, (2) the 489-bed Chicago State Tuberculosis Sanitarium, (3) the 411-bed addition to the University of Illinois Research and Educational hospitals, (4) the 15-story Cook county interns and residents dormitory, (5) the 16-story Presbyterian Hospital School of Nursing, which will provide facilities for 350 graduate and student nurses, (6) the medical center steam plant already in operation, (7) the Cook County Graduate School of Medicine, a non-profit teaching establishment, (8) the University of Illinois staff apartment building, providing 145 apartments, and (9) the University of Illinois student residence hall, with facilities for 420 students.

The new east unit of the Dentistry-Medicine-Pharmacy Building at the University of Illinois and the residential unit for mentally ill children will be erected by the state department of public welfare early in 1952. Among the projects contemplated are the Stritch School of Medicine and the Dental School of Loyola University, which will include a teaching hospital, a research institute, and a student residence; Chicago Medical School, including its teaching hospital and a research laboratory, and the new east pavilion of Presbyterian Hospital. Plans are being drawn and sites have been selected for other types of medical services, which may be utilized for research and teaching purposes. These include an outpatient clinic for Cook County Hospital, the Morrison Home for the Aged, providing for research studies in geriatrics, the Chicago Foundlings Home, University of Illinois School of Nursing, the Institution for Tuberculosis Research, the Illinois Eye and Ear Infirmary, a psychiatric hospital and clinic for treatment of acute mental illnesses, the Cancer Research Institute, and an institute for research on alcoholism and drug addiction. When completed, the medical center district will represent an investment of $300 million in land, building, equipment, and endowment.

## INDIANA

**Personal.**—A year's leave of absence has been granted Dr. Donald J. Caseley, medical director of the Indiana University hospitals, Indianapolis. Dr. Caseley has been named as associate director of the Commission on Financing of Hospital Care.

**Orthopedic Travel Club.**—Indiana University, Indianapolis, was host to a group of orthopedic surgeons, known as the Orthopedic Travel Club the week end of Feb. 1. The surgeons came from various parts of the United States for their annual meeting here.

**Radiologic Conferences.**—Dr. Joseph L. Morton, Columbus, Ohio, radiologist for the Ohio State University hospitals, was a guest speaker on the medical center campus, Indianapolis, Feb. 21-22, for a series of conferences arranged by the department of radiology of the Indiana University School of Medicine with the support of the Indiana Cancer Society.

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

V 1
195

## KANSAS

**State Opens Child Psychiatric Clinic.**—Topeka State Hospital is ready to screen, diagnose, and treat on an outpatient basis any Kansas child needing psychiatric help. Additional facilities for boys and girls who need to be treated in the hospital for some period of time will be available in a few months. A new outpatient service for adults is also open to any Kansan on an appointment basis. Parents may take their children to the outpatient clinic in much the same way they would go to their family doctors after calling or writing for appointments. Probate judges and social and other referring agencies may also make use of this new service. The charge for any patient is on the basis of ability to pay.

## MASSACHUSETTS

**Dr. Bakst Succeeds Dr. Fleming.**—Dr. Henry J. Bakst, associate professor of preventive medicine, has been promoted to full professorship and head of the genital infection department of Boston University and of the Massachusetts Memorial Hospitals. Dr. Bakst takes up his new duties on the resignation of Dr. William L. Fleming, who recently accepted the post of professor of preventive medicine at the University of North Carolina, Chapel Hill.

**Training Public Health Personnel.**—The position of director of training, Massachusetts Department of Public Health, has been made a part of the permanent administration of the department. Until now, the position has been financed by a grant from the W. K. Kellogg Foundation, one of the funds supporting the department's program of training public health personnel. Leon A. Bradley, Ph.D., who has been director of training since the division was created in 1950, will continue in that position. The division has trained 310 public health workers in medical health administration, medical social work, public health nursing, health education, and environmental sanitation.

## MICHIGAN

**Residencies in Ophthalmology.**—Residencies in ophthalmology are available immediately at the City of Detroit Receiving Hospital for physicians who have completed training in basic ophthalmology. This large municipal hospital for emergency cases and indigent patients needs additional residents to staff an eight story addition and offers opportunity for clinical and surgical training, as well as research in ophthalmology, with facilities and staff of the Kresge Eye Institute available. Graduate training is offered in optics, biochemistry, ocular pathology, and motility. Tax-free grants are offered until residents are eligible for the city payroll. For information write Dr. Albert D. Ruedemann, Kresge Eye Institute, 690 Mullett St., Detroit 26.

**Northern Michigan Rheumatic Fever Center.**—The newly created Northern Michigan Rheumatic Fever Diagnostic and Consultation Center opened in January in Little Traverse Hospital at Petoskey. It will serve the five counties of Antrim, Charlevoix, Cheboygan, Emmet, and Otsego. Since its inception by the Michigan State Medical Society, the program has increased from the original pilot control center at Marquette to 30 diagnostic and consultation centers located in 16 well-defined areas of the state. The rheumatic fever control program is operated throughout the state by the medical society as a service to the people. The program receives no government aid. The major portion of its financial support comes from the Michigan Heart Association. Yearly grants are also provided by the Michigan Chapter of the Arthritis and Rheumatism Foundation and the Michigan Society for Crippled Children.

## MINNESOTA

**The Nineteenth Judd Lecture.**—The 19th E. Starr Judd Lecture will be given by Dr. Thomas G. Orr, professor of surgery, University of Kansas, Kansas City, March 20 at 8:15 p. m. in Owre Hall at the University of Minnesota, Minneapolis, on treatment of carcinoma of the pancreas. The late E. Starr Judd, an alumnus of the medical school, established this lectureship in surgery a few years before his death.

## MISSOURI

**Joint Meeting of Chest Physicians and Trudeau Societies.**—The Missouri chapters of the American College of Chest Physicians and the Trudeau Society will meet at the Jefferson Hotel in St. Louis, March 30 beginning at 12 noon. There will be a round-table discussion on valvulotomy under the chairmanship of Dr. David B. Flavan. Dr. Osler A. Abbott of Emory University School of Medicine, Atlanta, will speak on "Cineradiography in the Study of Thoracic Lesions"; Dr. Louis L. Friedman of Birmingham, Ala., will discuss "Antracosilicosis." The meeting will close with a paper by Dr. LeRoy Sante, St. Louis, on "Azotemic Edema of the Lung and Its Relationship to Collagen Disease."

**Personals.**—Dr. W. Barry Wood Jr., Busch Professor of Medicine at Washington University School of Medicine, St. Louis, served as physician-in-chief pro tempore at the Peter Bent Brigham Hospital in Boston for the week of Jan. 14.——Dr. Robert A. Moore, dean, Washington University School of Medicine, St. Louis, left Feb. 12 for Bangkok, Thailand, where, as director of the Washington University-Thailand medical schools teaching assistance program, he will lecture on pathology and observe results of the exchange program. Washington University School of Medicine became the first school in the nation to establish a cooperative teaching program under the Marshall Plan when plans for the project were completed last April (THE JOURNAL, May 19, 1951, page 265).——Dr. Cecil G. Baker, assistant in neurology and psychiatry, St. Louis University School of Medicine, left on Feb. 25 for Iowa City to become acting chief of the neuropsychiatric service at the new Veterans Administration Hospital, which is expected to be opened the first week in March.

## MONTANA

**New Community Hospital.**—The Murray Hospital, which has been functioning in Butte for over 50 years, closed its doors on Jan. 21, and the patients were transferred to the new Butte Community Memorial Hospital. However, the Murray Clinic, which owned and operated the Murray Hospital, is continuing to operate as a clinic in its building at 9 W. Granite St. The new Butte Community Memorial Hospital is a $4.5 million institution of 122 beds donated to the community by the Anaconda Copper Mining Company. Dr. William B. Talbot is administrator and chief-of-staff.

## NEW YORK

**Society of Mental Health.**—The New York State Society for Mental health, succeeding the Committee on Mental Health of the State Charities Aid Association, has been organized as a part of the association to carry out a program of mental health throughout the state. The group, made up of both lay and professional persons, will expand the mental health work the association has been doing for 45 years. One of its first projects will be the creation of a committee to study all New York State laws affecting mental health.

### New York City

**Columbia Tuition Raised.**—Columbia University has raised tuition in its 17 schools and departments effective next fall. The schools of medicine and dentistry will charge $825 a year in place of the present $750. The increases are the third in a decade.

**The Isidore Friesner Lecture.**—Dr. George Gomori, professor of medicine at the University of Chicago, will deliver the Isidore Friesner Lecture of the Mount Sinai Hospital of New York March 7 at 8:30 p. m. in the Blumenthal Auditorium. His subject will be "Histochemistry of Enzymes."

**Anniversary Volume Honors Dr. Jaffe.**—The October, 1951, *Bulletin of the Hospital for Joint Diseases* is dedicated to Dr. Henry L. Jaffe, pathologist and director of laboratories of the hospital, and commemorates the 25th anniversary of his association with the hospital. The 527 page issue contains essays written by 34 of Dr. Jaffe's medical friends and admirers.

**Lecture on Cortisone and Cancer.**—Louis F. Fieser, Ph.D., Sheldon Emery Professor of Organic Chemistry at Harvard University, Boston, will speak on "Cortisone and the Cancer Problem" March 20 at 8 p. m. in the Great Hall, City College of New York. The lecture is the fourth in a series of Bicentennial Science Lectures of the City College.

**Meeting on Pulmonary Hazards of Industry.**—As a part of the annual meeting of the New York Trudeau Society on March 5 the first joint meeting of this group and the Tuberculosis Sanatorium Conference of Metropolitan New York will be held at 8:15 p. m. at Cornell University Medical College amphitheatre. The subject, "Pulmonary Hazards in Industry," will be discussed by Dr. Arthur J. Vorwald, director of research, Trudeau Foundation, Saranac Lake, N. Y., and Dr. Irving Graef, associate professor of clinical medicine, New York University Post-Graduate Medical School. Discussion leaders are Dr. Anthony J. Lanza, also of the Post-Graduate Medical School, and Dr. Leonard Greenburg of the State of New York Department of Labor, New York. The Tuberculosis Sanatorium Conference of Metropolitan New York serves as a forum for the informal consideration of problems and matters of general and local interest in the medical, nursing, and business administration of tuberculosis sanatoriums and hospitals. The conference is supported by the Tuberculosis and Health Associations of Brooklyn, Queens, New York, Yonkers, and of Nassau, Rockland, Suffolk, and Westchester counties.

## NORTH CAROLINA

**Brevard Sewage Treatment Plant.**—Brevard completed improvements on the town's water supply and dedicated and placed in operation its new sewage treatment plant late last year. The plant is the first to be constructed in the French Broad River Basin. Brevard is located in a rapidly developing industrial area. The city made plans to develop its water resources both for industrial and recreational values prior to the passage of the stream sanitation law in 1951 by the general assembly. The total cost of the improvements was about $500,000.

**University Appointments.**—Dr. William L. Fleming, professor of preventive medicine at Boston University School of Medicine, will go to the University of North Carolina later this year. He will be professor of preventive medicine and director of the medical outpatient clinic of the new University Hospital of the medical school at Chapel Hill when it opens. Dr. Fleming from 1939 to 1945 was professor of syphilology at the University of North Carolina. Dr. George C. Ham, who has been at the Institute for Psychoanalysis in Chicago, joined the university in December as professor of psychiatry. Dr. William James Cromartie, associate professor of bacteriology and medicine at the University of Minnesota, Minneapolis, has been appointed associate professor in bacteriology and director of the bacteriological laboratory in the University Hospital.

## OHIO

**Society News.**—The Mahoning County Medical Society celebrated its 80th anniversary at a dinner at the Youngstown Country Club, Jan. 15. The new president, Dr. Carl A. Gustafson, Youngstown, was inaugurated at this meeting.

**Diagnosis and Treatment of Malignant Disease.**—On April 3-5 the Frank E. Bunts Institute and the Cleveland Clinic Foundation will present a continuation course for physicians on "The Diagnosis and Treatment of Malignant Disease." Dr. Freddy Homburger, research professor of medicine, Tufts College Medical School, Boston, will give the evening lecture April 4. The other guest speakers will be Dr. Allan C. Barnes, professor of obstetrics and gynecology and chairman of the department, Ohio State University College of Medicine, Columbus; Dr. Brown M. Dobyns, associate professor of surgery, Western Reserve University School of Medicine, Cleveland; and Dr. Thomas D. Kinney, director of laboratories, Cleveland City Hospital, and professor of pathology, Western Reserve University School of Medicine. Inquiries may be addressed to the Frank E. Bunts Educational Institute, 2020 East Ninety-third St., Cleveland 6.

## OKLAHOMA

**Long Memorial Lecture.**—Dr. Arthur Grollman, professor of experimental medicine, Southwestern Medical School, Dallas, will deliver the Leroy Long Memorial Lecture at the University of Oklahoma School of Medicine, Oklahoma City, on the evening of March 14.

## OREGON

**State Board of Health Appointments.**—Dr. Otto C. Hagmeier of Seaside has been elected president of the Oregon State Board of Health succeeding Dr. Thomas E. Griffith of The Dalles. Dr. Hagmeier practiced 40 years before his recent retirement. Named to assist him are Dr. Norman E. Irvine, Lebanon, first vice-president, and L. L. Riggs, Portland, second vice-president. Dr. Harold M. Erickson, Portland, will continue as secretary and state health officer.

## TENNESSEE

**Dr. Quinn to Head Department at Vanderbilt.**—Dr. Robert William Quinn, associate professor of preventive medicine, University of Wisconsin Medical School, Madison, has been appointed professor and head of the department of preventive medicine and public health at Vanderbilt University School of Medicine, Nashville. Dr. Quinn graduated from McGill University Faculty of Medicine, Montreal, in 1938. After active duty with the U. S. Navy (MC) Reserve, 1942-1946, he became research fellow in preventive medicine at Yale University School of Medicine and then instructor in preventive medicine there. He has been at the University of Wisconsin Medical School since 1949. Dr. Quinn will assume his duties at Vanderbilt in June, 1952, and Dr. Alvin E. Keller, who has been acting head of the department at Vanderbilt, will continue as associate professor of preventive medicine and public health.

## TEXAS

**Southwestern Medical School Buildings.**—At its meeting on Feb. 1-2, the board of regents of the University of Texas approved preliminary plans for a $2,750,000 basic science building for Southwestern Medical School in Dallas. It is expected that this building, the first unit on the school's permanent campus, may be completed by the summer of 1953. A request for funds for a clinical building will be presented to the next state legislature.

**Meetings on Tumors.**—Several meetings will be held at the Texas Medical Center, Houston, on April 25-26. At the Sixth Annual Symposium on Fundamental Cancer Research of the University of Texas M. D. Anderson Hospital for Cancer Research, a half-day will be devoted to papers on nutritional factors in cancer. The Cancer Pathology and Radiology Conference of The University of Texas M. D. Anderson Hospital and Postgraduate School of Medicine will be on tumors and other diseases of bone. The South Central Section of the College of American Pathologists will participate. Dr. Maxwell M. Wintrobe, professor of medicine, University of Utah, Salt Lake City, is arranging the session on nutritional factors in cancer. Dr. Granville A. Bennett, professor of pathology, University of Illinois, Chicago, and Dr. L. Henry Garland, clinical professor of radiology, Stanford University Medical School, San Francisco, will jointly conduct the Conference on Tumors and Other Diseases of Bone. The third Bertner Foundation Lecture and Award will be made at the banquet on April 25. Information may be obtained from Dr. William O. Russell, 2310 Baldwin St., Houston 6.

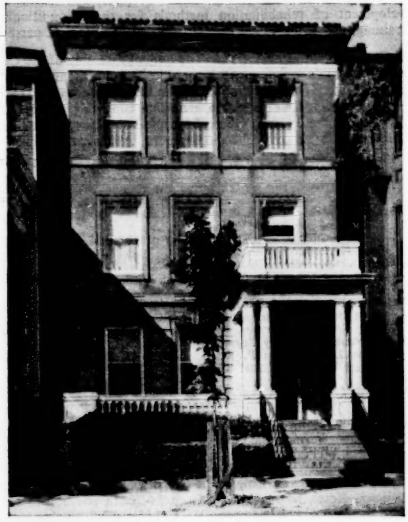
## VIRGINIA

**Gill Memorial Hospital Congress.**—The 25th annual spring congress of the Gill Memorial Eye, Ear and Throat Hospital will be held April 7-12 in Roanoke. The program will include lectures and demonstrations of interest to eye, ear, and throat specialists. The fee is $75. The faculty includes Drs. Francis H. Adler, Philadelphia; James H. Allen, New Orleans; Hermann M. Burian, Iowa City; W. Edward Chamberlain, Philadelphia; Paul A. Chandler, Boston; Kenneth M. Day, Pittsburgh; John H. Dun-

V 14
1952

nington, New York, Edwin B. Dunphy, Boston; Frederick A. Figi, Rochester, Minn.; Watson Gailey, Bloomington, Ill.; Leslie N. Gay, Baltimore; Henry M. Goodyear, Cincinnati; Bayard T. Horton, Rochester, Minn.; Robert M. Hosler, Cleveland; Howard P. House, Los Angeles; Chevalier L. Jackson, Philadelphia; Edward C. Kendall, Ph.D., Princeton, N. J.; T. Keith Lyle, London, England; Surgeon General H. Lamont Pugh, USN, Washington, D. C.; Hunter H. Romaine, New York; Frank B. Walsh, Baltimore, and James C. White, Boston. There will also be special guests representing national medical organizations at this silver anniversary of the congress.

**New State Society Headquarters.**—The headquarters of the Medical Society of Virginia has been moved to 1105 W. Franklin St., Richmond. The building, purchased about a year ago at a cost of $26,500, is a 13 room house built over 40 years ago. The first floor accommodates the joint activities of the society and the *Virginia Medical Monthly*. The front room on the second floor has been rented to the Virginia Academy of General



New headquarters for the Medical Society of Virginia.

Practice, and it is anticipated that other rooms will be rented. The society formerly had its headquarters in the Richmond Academy of Medicine building.

## WISCONSIN

**Marquette Spring Clinics.**—The Alumni Association of Marquette University School of Medicine will hold its spring clinics at the medical school in Milwaukee, March 29. Chairmen of the program are Drs. Robert D. O'Connor, Leo R. Weinshel, and George E. Collentine Jr. There will be an informal dinner dance at the Wisconsin Club.

**Dr. Frost Honored.**—After 43 years of service on the board of directors of Morningside Sanatorium in Madison, William D. Frost, Ph.D., emeritus professor of bacteriology, University of Wisconsin, has retired as president of this organization. Dr. Frost, who is 84, was honored at a testimonial dinner at the University Club, Feb. 29. Since its founding in 1917, Morningside has expanded its facilities from 10½ to 30 acres and a half dozen modernly equipped buildings. In addition to administrative duties, Dr. Frost has maintained interest in every patient, done all the x-ray work, supervised the laboratory, and helped develop the children's center.

## GENERAL

**Grant to Aid Pediatric Education.**—The National Foundation for Infantile Paralysis has made a grant of $10,000 to the American Academy of Pediatrics to be used by the Committee on Medical Education to improve pediatric education. This grant will enable the Medical Education Committee to hold 10 regional conferences on pediatric education in 1952.

**New Medical Journal.**—The first issue of *Metabolism*, bimonthly journal devoted to clinical and experimental metabolism, appeared in January. Drs. Samuel Soskin, Chicago, and Fuller Albright, Boston, the editors, are assisted by a board of associate editors and corresponding editors from 14 countries. The journal is designed to present to the clinician the practical applications of recent advances in metabolism. It will also attempt to keep the research worker abreast of clinical problems.

**Research in Human Fertility.**—The Planned Parenthood Federation of America is offering grants for basic research relating to problems of human fertility, including infertility and conception. The grants are being made available through the federation's Robert L. Dickinson Research Memorial. Applications will be received and screened by a subcommittee of the medical committee of the federation. Applicants should address the Robert L. Dickinson Research Memorial, Planned Parenthood Federation of America, 501 Madison Ave., New York 22.

**Society Elections.**—At the annual meeting of the American College of Radiology in Chicago, Feb. 8, the following officers were elected: Dr. John S. Bouslog, Denver, president; Dr. Robert P. Ball, Baton Rouge, La., vice-president; Dr. John D. Camp, Los Angeles, chairman of the board of chancellors, and Dr. Earl E. Barth, Chicago, treasurer. At the annual banquet the Gold Medal of the American College of Radiology was awarded to Dr. George E. Pfahler of Philadelphia for "distinguished and extraordinary service to the college and to the profession for which it stands." This was the eighth such medal awarded in the 30-year history of the college. Dr. Pfahler, the first president of the American College of Radiology, also has served as president of the American Roentgen Ray Society and the American Radium Society.

**Railway Surgeons Association.**—The annual meeting of the American Association of Railway Surgeons will be held at the Drake Hotel, Chicago, April 1-3, under the presidency of Dr. D. Ray Murdock, Greensburg, Pa. In addition to 16 papers to be presented at the meeting, there will be a symposium on vascular disorders on Wednesday evening with the following speakers:

Martin H. Wendkos, Philadelphia, Outlook for the Railroad Employee with Heart Disease.
Eric Oldberg and Oscar Sugar, Chicago, Diagnosis and Treatment of Cerebral Vascular Lesions.
Leo M. Zimmerman, Chicago, Thrombosis and Embolism.
Walter W. Carroll, Chicago, Trends in Treatment of Varicose Veins.

At the dinner Wednesday evening the Honorable Walter H. Judd, M.D., Congress of the United States, 5th District, Minnesota, will speak on "Which Way America?"

**New Journal on Diabetes.**—The first issue of *Diabetes, The Journal of the American Diabetes Association*, a bimonthly publication, appeared in February. It will be the association's official scientific and organizational publication, replacing its annual *Proceedings* and its quarterly *Diabetes Abstracts*, both of which have been published for 10 years. *Diabetes* is being edited by Dr. Frank N. Allan of the Lahey Clinic, Boston, first vice-president of the American Diabetes Association, who will be assisted by a 16-member editorial board under the chairmanship of Dr. Charles H. Best of the University of Toronto, Canada. There are also four consulting foreign editors. The first issue contains eight scientific papers, abstracts, editorials, an historical biography, diabetes statistics, book reviews, and an organization section. The subscription rate is $9 a year for nonmembers of the association; members will receive it without charge. The editorial offices are at 11 West 42nd St., New York 18.

**American Congress in Obstetrics and Gynecology.**—The Fifth American Congress on Obstetrics and Gynecology will be held in Cincinnati's Netherland-Plaza Hotel March 31 through April 4. It is sponsored by the American Committee on Maternal Wel-

fare. In addition to a comprehensive medical program, there will be papers on nursing and public health and a special session on sociologic factors. The latest developments on proposed legislation for emergency medical and infant care will be presented by Dr. Joseph Lawrence, director of the American Medical Association's Washington office. There also will be discussions on education for the patient, the doctor, the student, and the hospital. Techniques, conclusions, and follow-up action in Chicago's recent investigation of neonatal deaths of 10,000 infants will be revealed in a symposium on the public health program, under the chairmanship of Dr. Herman N. Bundesen, president of the Chicago Board of Health. The scientific and clinical program will cover all aspects of obstetrics and gynecology. Among the subjects will be sterility, fetal wastage, Rh and Hr sensitization, and uterine carcinoma. Among the speakers will be Dr. Woodard D. Beacham, New Orleans, medical section chairman, and Dr. Nicholson J. Eastman, Baltimore, general program chairman. Among the special exhibits will be a demonstration of prenatal exercises by the Maternity Center Association, a typical home delivery by the Frontier Nursing Service of Kentucky, a display of cytology smears prepared by Duke University and employing more than 100 microscopes, and a demonstration of nurse anesthesia by the American Association of Nurse Anesthetists.

**Airline Medical Directors Association.**—The annual meeting of this association was held Feb. 22-23 at the Randolph Field headquarters of the Air Force School of Aviation Medicine in Texas in order to study the research work being done by the Air Force on medical problems of flight. Members of the association, an international organization representing the medical services of the world's major airlines, toured the air force base and visited the research laboratories at the school. Among the questions discussed were sudden deceleration and crash prevention, prevention of epidemics arising from worldwide air travel, toxic materials such as fuels used in highspeed aircraft, and the problem of aging. Several foreign medical advisers attended the meeting. Dr. Francis N. Kimball of New York is president of the association, and Dr. Percy B. Wiltberger, Columbus, Ohio, is the retiring president.

**American Psychosomatic Society.**—This society will hold its annual meeting March 29-30 at the Drake Hotel, Chicago, under the presidency of Dr. Roy R. Grinker, Chicago. In addition to papers to be presented, there will be discussions as follows:

Psychophysiological Changes After Thalamotomy, H. Keith Fischer, Herbert Freed, Carlton Orchinik, M.A., Philadelphia.

Observations on Psychodynamic Changes in Patients Receiving Artificial Insemination, Fred P. Robbins and Therese F. Benedek, Chicago, George C. Ham, Chapel Hill, N. C.

Effect of Psychoanalysis on the Course of Peptic Ulcer: A Preliminary Report, Leonard A. Stine, Andrew C. Ivy, Chicago.

Emotions and HCl Secretion During Psychoanalytic Hours, George F. Mahl, Ph.D., Richard Karpe, New Haven, Conn.

Psychodynamics of Peptic Ulcer Pathogenesis in Hospitalized Schizophrenic Patients, Melvin Myron Katz, Ph.D., Northport, N. Y.

An Experimental Investigation in Anxiety; Interdisciplinary Research in Life Situations, Sheldon J. Korchin, Ph.D., Harold Persky, Ph.D., Harold Basowitz, Ph.D., and Dr. Grinker.

A Preliminary Report on the Emotional Aspects of the Respirator Care of Patients with Poliomyelitis, Dane G. Prugh and Consuelo K. Tagiuri, Boston.

Psychogenic Factors and Psychotherapy in Raynaud's Syndrome, John A. P. Millet and Bela Mittelmann, New York, and Harold I. Lief, New Orleans.

Further Observations on Psychological Factors in Patients with Lymphomas and Leukemias, William A. Greene Jr., Rochester, N. Y.

**WHO Executive Board Meeting.**—The Executive Board of the World Health Organization ended its ninth session at Geneva Feb. 4 under the chairmanship of Dr. Jacques Parisot, (France). The board appointed Dr. Parisot, Dr. A. L. Bravo (Chile) and Dr. W. A. Karunaratne (Ceylon) as its official representatives to the next or Fifth World Health Assembly, to meet May 5-25 in Geneva. Among other recommendations to the assembly was a larger budget for 1953. The board recommended the inclusion of Algeria, Greenland, Morocco, and Tunisia in the European region, and the inclusion of the trust territory of Somaliland under Italian administration in the Eastern Mediterranean Region. Dr. Norman D. Begg of Scotland and Dr. Francois Daubenton of the Netherlands were selected as directors of the WHO regional offices for Europe and Africa, respectively. Dr. Pierre Montus, director of the child health department of Paris is the new deputy director of the European Regional Office. The board also confirmed the choice of Geneva as the temporary location for the Regional Office for Europe and of Brazzaville as the seat of the Regional Office for Africa. Two long-range programs evolved by the World Health Organization with other United Nations Agencies were approved. The international program for children, designed to assist governments in a variety of fields, lays down principles for child welfare programs as integral parts of national health services, and gives high priority to a joint program to aid governments in training community auxiliary workers in health, social welfare, and nutrition in underdeveloped areas. It is proposed to establish a limited number of such pilot training projects in 1952. The international plan for rehabilitation of physically handicapped persons is designed to serve as a guide to countries at various stages of economic development. It includes recommendations for the promulgation of measures to prevent or limit physical disability, for awakening of public opinion concerning the handicapped, and for the development of rehabilitation methods for the reconditioning, training, and employment of all classes of handicapped persons.

**Central Surgical Association.**—The annual assembly of the Central Surgical Association will be held in Toronto, Canada, at the Royal York Hotel, March 7-8, under the presidency of Dr. B. Noland Carter, Cincinnati. An invitation clinic day will be held March 6 at the Toronto General Hospital and Hospital for Sick Children. Physicians delivering papers by invitation include:

Elden C. Weckesser, John F. Lindsay Jr., Frank A. Cebul, Cleveland, Plication of Small Intestine for Obstruction Due to Adhesions.

Jack H. Hertzler, Birmingham, Mich., Experimental Method for Everting End-to-End Anastomosis in Gastrointestinal Tract.

Frank J. Rack, James R. Mincks, Fiorindo A. Simeone, Cleveland, Etiology of Esophageal Varices.

Robert H. Clifford, Detroit, Evaluation of Three Methods of Treatment for Finger Tip Amputation.

Merle M. Musselman, Eloise, Mich., Wayne W. Glas, Ann Arbor, Mich., and Thomas D. Grekin, Detroit, U. S. Army Medical Corps, Fat Embolism: Clinical Investigation.

Gould A. Andrews, Oak Ridge, Tenn., Intracavitary Colloidal Radioactive Gold in Treatment of Effusions Caused by Neoplasms.

William Coxe, Indianapolis, Impedance Plethysmography in Study of Peripheral Circulatory Disorders.

F. John Lewis, Milton P. Reiser, Richard H. Egdahl, Minneapolis, Clinical Uses of Artificial Kidney.

The dinner dance will be Friday evening. The guest speaker will be Dr. Hans Selye, professor of experimental medicine and surgery at the University of Montreal Faculty of Medicine, on "Recent Advances in the General-Adaptation-Syndrome."

**Surgeons Sectional Meeting in Minneapolis.**—A sectional meeting of the American College of Surgeons will be held at the Radisson Hotel, Minneapolis, March 24-26. In addition to separate papers, the scientific program includes the following panel discussions and symposiums:

Breast Tumors, Orwood J. Campbell, Minneapolis, moderator, with Anthony R. Curreri, Madison, Wis., and Paul W. Schafer, Kansas City, Kas.

Intestinal Obstruction, Owen H. Wangensteen, Minneapolis, moderator, with Carl W. Eberbach, Milwaukee, Frederick C. Hill, Omaha, and Lloyd F. Sherman, Minneapolis.

Symposium on Trauma, Dr. Schafer and Daniel J. Moos and Richard S. Rodgers, Minneapolis.

Symposium on Cancer, T. Brannon Hubbard, Minneapolis, Wallace P. Ritchie, St. Paul, and John B. Erich, Rochester, Minn.

Hysterectomy: Total, Subtotal, or Vaginal, John W. Huffman, Chicago, moderator, with Paul N. Larson, Minneapolis, Joseph H. Pratt, Rochester, Minn., and Charles G. Uhley, Crookston, Minn.

Bleeding from Gastrointestinal Tract, Charles E. Rea, St. Paul, moderator, with Thomas C. Douglass, Chicago, and Lyle J. Hay and J. John Lewis, Minneapolis.

At the dinner meeting on Monday, J. O. Christianson, D.Sc., Minneapolis, will speak on "Rediscovering America," and Dr. Paul R. Hawley, Chicago, director, American College of Surgeons, will speak on "Your College: What It Means to You and to Me." The Minneapolis Surgical Society will hold its 30th anniversary banquet at 6:30 p. m. Tuesday. Dr. George Crile Jr. of the Cleveland Clinic Foundation will speak on "Recent Trends in Thyroid Surgery." The Minnesota Academy of Ophthalmology and Otolaryngology will present a program on otolaryngology in conjunction with the American College of Surgeons on Tuesday.

V 14
1952

## CANADA

**Glaucoma Laboratory.**—The University of Toronto has established a glaucoma laboratory in the Banting Institute to be directed by Dr. Thomas H. Hodgson. The laboratory will undertake basic studies in conjunction with the glaucoma clinic service. A grant from the Ontario Provincial Department of Health made the laboratory possible.

## LATIN AMERICA

**Society News.**—The Cuban Society of Dermatology and Syphilography has elected the following officers for 1952: Dr. Jose de Castro Palomino, president; Dr. Fernando Trespalacios, vice-president; Dr. Guillermo Gonzalez Peris, secretary, and Dr. Pastor Farinas, treasurer.

**Meetings on Gastroenterology in Mexico.**—The third Pan-American Medical Week of Gastroenterology and the First National Congress of Gastroenterology will take place in Mexico City May 11-17. The meetings will be held under the auspices of the Inter-American and Mexican Associations of Gastroenterology. The main topic will be the pancreas, and papers will deal with surgical, medical, biochemical, diagnostic, and physiologic problems. The secretary general is Dr. R. Flores-Lopez, Cientifica del Hospital General, Mexico, 9, D. F.

## FOREIGN

**WHO-Aided Malaria Campaign in Philippines.**—The first Philippine malaria control project to be aided by the World Health Organization began Feb. 16 on the island of Mindoro. Since most residents of Mindoro are rice farmers, the program to control the disease is expected to result in great improvement in food production. The team will endeavor to protect more than 50,000 persons against malaria. Following this WHO-assisted phase, Philippine government control teams will take over and extend control measures. The method to be used is residual spraying of dichlorodiphenyltrichoroethane (DDT) and BHC. Transport of insecticides and sprayers will be provided by the government. WHO is supplying international experts, laboratory equipment and supplies, technical literature, and additional transport.

**Ramon y Cajal Prize Awarded.**—The Ramon y Cajal Prize, given by the Spanish Government, has been awarded Dr. Jose Manuel Rodriguez Delgado, research fellow in physiology at Yale University School of Medicine, New Haven, Conn., for his paper on a new technique whereby he implants electrodes in the brains of laboratory animals to study the functions of the brain. The prize, which carries an honorarium of about $1,000, was established by Spain in honor of the late Dr. Santiago Ramon y Cajal, co-winner in 1906 of the Nobel Prize for his work on the structure of the nervous system. Dr. Delgado, a native of Rondo, Spain, received his medical training at the University of Madrid and has been on the faculty there since receiving his medical degree. He also is a member of the Cajal Research Institute, which is associated with the university.

**Medical Mission to East Asia.**—A World Health Organization team of eleven medical scientists from seven countries will shortly visit Burma, Ceylon, and India to work with medical-education projects similar to those carried out last year in the Middle East. The visits will have three main purposes: exchange of information with local medical specialists, lectures and demonstrations on advances in medical techniques, and discussion of problems relating to medical education in the host countries. The visiting scientists will advise in their special fields if such advice is expressly sought by host governments. The team is under the chairmanship of Dr. Erik Husfeldt, professor of thoracic surgery at the University of Copenhagen. It was scheduled to arrive in Calcutta on February 4, in Rangoon on February 13, and in Colombo early in March. The team will include the following specialists: Dr. Erik Wain Anderson, anesthesia, Copenhagen; Dr. E. W. H. Cruikshank, physiology, Aberdeen, Scotland; Dr. Marcel Florkin, biochemistry, Liège, Belgium; Dr. John E. Gordon, epidemiology, Boston; Dr. Edward Grzegorzewski, public health, Geneva, Switzerland; Dr. Erik Husfeldt, thoracic surgery, Copenhagen; Dr. Malcolm R. MacCharles, surgery, Winnipeg, Manitoba, Canada; Dr. H. O. Schild, pharmacology, London; Dr. B. Vahlquist, pediatrics, Uppsala, Sweden; Dr. F. S. P. Van Buchem, medicine, Groningen, Holland, and Dr. Rohan Williams, radiology, London.

**Tuberculosis Training Center in New Delhi.**—A tuberculosis training center will be opened in New Delhi early in 1952. It represents an extension of the Tuberculosis Association of India's existing clinic in the Irwin Hospital Compound. Both centers will continue to be under the direction of Dr. B. K. Sikand. X-ray and laboratory equipment, provided by the United Nations International Children's Emergency Fund, has been installed. WHO has also provided an international team consisting of a bacteriologist, an epidemiologist, a laboratory and x-ray expert, and a public health nurse to work, during the first years of the center's operation, with a similar local team provided by the Tuberculosis Association of India.

# EXAMINATIONS AND LICENSURE

### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part II*, April 21-22; *Parts I and II*, June 16-18 or June 23-25; *Part I*, September. All centers where there are five or more candidates. Exec. Sec., Dr. John P. Hubbard, 225 S. 15th St., Philadelphia 2.

### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Various Locations, July 18. Final date for filing application was Jan. 18. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written*. Various centers, March 1952. *Oral*. Chicago, May 1952. Final date for filing application was Feb. 1, 1952. Candidates for these tests must have completed three years of approved training prior to July 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Various centers and overseas, Oct. 20. Closing date for the acceptance of applications for the written examination will be May 1. *Oral*. Cleveland, April 17-19; Chicago, June 5-7, San Francisco, September or October; New York City, November or December. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main Street, Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May 1952. Final date for filing applications for the May 1952 examination was Jan. 1. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral*. Chicago, June 9-13, 1952. Final date for filing application was Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical*. Philadelphia, May 29-June 3; Chicago, Oct. 6-10 and New York City, June 6-10, 1953. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY. Toronto, May 13-17; Chicago, Oct. 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral*. St. Louis, Mo., Mar. 21-23; Washington, D. C., May 3-5; San Francisco, late June; Chicago, October and Boston, late November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II*. Chicago. June 8 and 9. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written*. St. Louis, May 17-19. Sec., Dr. Bradford Cannon, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH. *Written*. Berkeley, Calif., Minneapolis, New Orleans and Baltimore, April 18. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PROCTOLOGY. *Part I*. Kansas City, Minneapolis, Philadelphia and San Francisco. May 3. Examination includes both oral and written examinations in the basic sciences. *Dates and places tentative*. Sec., Dr. Louis A. Buie, 102-110 2d Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Chicago, June 13-14. Final date for filing applications is March 15. New York City, Dec. 15-16. Final date for filing applications is Sept. 15. Sec.-Treas., Dr. David A. Boyd, Jr., 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral*. Spring 1952. Final date for filing application was Dec. 31. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers. March 1952. Final date for filing application was Dec. 1, 1951. The following written examination will be given in October 1952. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

BOARD OF THORACIC SURGERY: Various parts of the country. *Written*. Feb. 29, 1952. Final date for filing application is Jan. 15. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

# MEETINGS

AFRO MEDICAL ASSOCIATION, Washington, D. C., March 17-19. Dr. Thomas H. Sutherland, 214 South State St., Marion, Ohio, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Montgomery, April 17-19. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Biltmore Hotel, Atlanta, Ga., March 6-8. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Atlantic City, N. J., March 24-27. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY, Cincinnati, April 1. Dr. Ralph A. Reis, 116 South Michigan Boulevard, Chicago 3, Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Providence, R. I., March 19-21. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, New York, April 14. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, New York, April 10-12. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 1-3. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, William Penn Hotel, Pittsburgh, April 7-9. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETINGS:

Minneapolis, Radisson Hotel, March 24-26. Dr. Harvey Nelson, 78 South 9th St., Minneapolis 2, Chairman.

Tucson, Ariz., Pioneer Hotel, April 7-9. Dr. Meade Clyne, 110 South Scott St., Tucson, Chairman.

Vancouver, B. C., Vancouver Hotel, March 31-April 4. Dr. J. Russell Neilson, 925 West Georgia St., Vancouver, B. C., Chairman.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY, Netherlands-Plaza Hotel, Cincinnati, March 31-April 4. Dr. Luella E. Nadelhoffer, 116 South Michigan Ave., Chicago 3, Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, Broadmoor Hotel, Colorado Springs, Colo., Apr. 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN HEART ASSOCIATION, Hotel Statler, Cleveland, April 17-20. Dr. Willian H. Bunn, 1775 Broadway, New York 19, Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Chicago, March 29-30. Dr. Frederick C. Redlich, 551 Madison Avenue, New York 22, Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, New York, April 14-18. Dr. Russell L. Holman, 1542 Tulane Ave., New Orleans 12, Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Hotel Statler, New York, April 14-18. Dr. Carl C. Pfeiffer, 1835 W. Polk St., Chicago 12, Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, New York, April 14-18. Dr. Elmer H. Stotz, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

AMERICAN SURGICAL ASSOCIATION, White Sulphur Springs, W. Va., Apr. 16-18. Dr. Nathan A. Womack, University Hospitals, Iowa City, Secretary.

ARKANSAS MEDICAL SOCIETY, Little Rock, April 21-23. Dr. William R. Brooksher, 215 Kelley Bldg., Fort Smith, Secretary.

CENTRAL SURGICAL ASSOCIATION, Toronto, Can., March 6-8. Dr. James T. Priestley, 102 Second Avenue S.W., Rochester, Minn., Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 4-7. Dr. Walter C. Bornemeier, 86 East Randolph St., Chicago 1, Secretary.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 6-12. Dr. Eugene H. Dibbie Jr., Memorial Hospital, Tuskegee Institute, Secretary.

MICHIGAN CLINICAL INSTITUTE, Book-Cadillac Hotel, Detroit, March 12-14. Dr. E. F. Sladek, 606 Townsend St., Lansing 15, Chairman.

MID-CONTINENT PSYCHIATRIC ASSOCIATION, President Hotel, Kansas City, Mo., April 26-27. Dr. Paul Hines, 2625 W. Paseo, Kansas City, Mo., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, March 30-April 2. Dr. H. E. Petersen, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CANCER CONFERENCE, Netherland Plaza Hotel, Cincinnati, March 3-5. Dr. Charles S. Cameron, 47 Beaver Street, New York, Medical Director.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 10-13. Dr. Woodward D. Beacham, 1430 Tulane Ave., Room 105, New Orleans 12, Secretary.

NORTH PACIFIC PEDIATRIC SOCIETY, Portland, Ore., March 8. Dr. Sydney G. Babson, 1020 S.W. Taylor St., Portland 5, Ore., Secretary.

NORTH PACIFIC SOCIETY OF INTERNAL MEDICINE, Portland, Ore., March 22. Dr. R. L. King, 1115 Terry Ave., Seattle 1, Secretary.

PIEDMONT PSYCOLOGIC SOCIETY, Charlotte, N. C., March 29-30. Dr. B. Richard Jackson, 224 Hillsboro St., Raleigh, N. C., Secretary.

POST GRADUATE INSTITUTE OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY, Bellevue-Stratford Hotel, Philadelphia, April 1-4. Dr. Thomas M. Durant, 301 South 21st St., Philadelphia 3, Director.

SOUTHEASTERN ALLERGY ASSOCIATION, Bon Air Hotel, Augusta, Ga., March 21-22. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 49, S. C., Secretary.

SOUTHEASTERN SECTION, AMERICAN UROLOGICAL ASSOCIATION, Boca Raton, Fla., April 2-5. Dr. Russell B. Carson, Sweet Bldg., Fort Lauderdale, Fla., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Atlanta, Ga., March 10-13. Dr. Benjamin J. Beasley, 701 Hurt Bldg., Atlanta 3, Ga., Secretary.

SOUTHWEST ALLERGY FORUM, Hotel Baker, Dallas, Texas, March 2-4 Dr. James Holman, Medical Arts Bldg., Dallas, Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, Andrew Johnson Hotel, Knoxville, April 7-9. Mr. V. O. Foster, 504 Doctors Bldg., Nashville 3, Executive Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Monterrey, Nuevo Leon, Mexico, March 17-19. Dr. J. C. Ellington, 314 U. S. Court House, El Paso, Texas, Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Del Monte Lodge, Pebble Beach, Calif., March 2-3. Dr. Nicholas A. Bercel, 450 North Bedford Drive, Beverly Hills, Calif., Secretary.

## INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

CONGRESS OF THE INTERNATIONAL DIABETES FEDERATION, Leyden, Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands, Secretary.

EUROPEAN CONGRESS OF CARDIOLOGY. University of London, Bloomsbury, W.C.1, England, Sept. 10-12. Dr. K. Shirley Smith, 35 Wimpole St., London, W.1, England, Secretary.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Strasbourg, France, Oct. 3-4. Sir James Learmonth, Department of Surgery, University New Buildings, Edinburgh 8, Scotland.

INTERAMERICAN CARDIOLOGICAL CONGRESS, Buenos Aires, Argentina, Aug. 31-Sept. 7. Dr. Blas Moia, Larrea 1132, Buenos Aires, Argentina, Secretary-General.

INTER-AMERICAN CONGRESS OF PUBLIC HEALTH, Havana, Cuba, Sept. 27-Oct. 1. Pan-American Sanitary Bureau, 2001 Connecticut Ave., Washington, D. C.

INTER-AMERICAN CONGRESS OF RADIOLOGY, Mexico City, Mexico, Nov. 2-6. Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F., Secretary-General.

INTERNATIONAL COLLEGE OF SURGEONS, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY, Madrid, Spain, May 4-11. Prof. Carda-Aparici, Calle Fernando VI.8, Madrid, Spain, Secretary.

INTERNATIONAL CONGRESS OF DERMATOLOGY AND SYPHILOLOGY, London, England, July 21-26. Dr. Gordon B. Mitchell-Heggs, 5, Lisle St., London, W.C.2, England, General Secretary.

INTERNATIONAL CONGRESS ON DIABETES, Leyden, The Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands.

INTERNATIONAL CONGRESS OF HAEMATOLOGY, Mar del Plata, Argentina, Sept. 21-26. Dr. Carlos Reussi, Anchorena 1710, Buenos Aires, Argentina, Secretary.

INTERNATIONAL CONGRESS OF HEALTH TECHNICIANS, Palais de la Mutualite, Paris, France, June 9-14. Secretariat General, 6 Square Desaix, Paris XV°, France.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Friends House, London, N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall East, London, S.W.1, England, Secretary.

INTERNATIONAL CONGRESS OF LEGAL AND SOCIAL MEDICINE, Berne, Switzerland, April 15-18. Prof. J. Dettling, 20, Buhlstrasse, Berne, Switzerland.

INTERNATIONAL CONGRESS ON MEDICAL RECORDS, London, England, Sept. 7-12. Miss Gwen Perkins, 120 C Street S.E., Washington, D. C., Chairman.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF OTO-NEURO-OPHTHALMOLOGY, Lisbon and Estoril, Portugal, April 22-26. Prof. Diogo Furtado, Servico de Neurologia, Hospital dos Capuchos, Lisbon, Portugal, General Secretary.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

INTERNATIONAL CONGRESS FOR THERMALISM AND CLIMATOTHALASSOTHERAPY, Nice-Cannes, France, April 3-8.

INTERNATIONAL SOCIETY OF GEOGRAPHIC PATHOLOGY, Liège, Belgium, July 15-18. Dr. Fred C. Roulet, Habelstr. 24, Basel, Switzerland, Secretary General.

INTERNATIONAL UNION AGAINST TUBERCULOSIS, Rio de Janeiro, Brazil, Aug. 24-27. Prof. Etienne Bernard, 66 Blvd. St. Michel, Paris 6e, France, Secretary-General.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Panama City, R. P., Feb. 24-29. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York, N. Y., U. S. A., Executive Director.

NEURORADIOLOGIC SYMPOSIUM, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

PAN-AMERICAN CONGRESS OF GASTROENTEROLOGY, Mexico City, D.F., May 11-17. Dr. R. Flores-Lopez, Calle Dr. Balmis, No. 148, Mexico City, D.F., Secretary.

PAN-EUROPEAN CONGRESS OF GASTROENTEROLOGY, Bologna, Florence and Rome, Italy, April 20-26. Prof. Guido Bassi, Policlinic of St. Orsola, Bologna, Italy, Secretary.

WORLD MEDICAL ASSOCIATION, Athens, Greece, Oct. 12-16. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary General.

V 14
1952

# DEATHS

**Sawyer, Wilbur A.,** Berkeley, Calif., died in the Samuel Merritt Hospital, Oakland, Nov. 12, aged 72, of arteriosclerotic heart disease. Dr. Sawyer was born in Appleton, Wis., Aug. 7, 1879. He received his medical degree from Harvard Medical School, Boston, in 1906. After serving an internship at the Massachusetts General Hospital in Boston, he joined the University of California as a medical examiner in 1908 and remained on the faculty until 1919, when he resigned. From 1914 to 1916 he was a lecturer and from 1916 to 1919 professor of hygiene and preventive medicine at the university. He was a director of the hygienic laboratory from 1910 to 1915 and from 1915 to 1918 secretary and executive officer for the California State Department of Public Health. During World War I he rose to the rank of major in the medical corps of the U. S. Army, serving as chief of the section on venereal diseases, Surgeon General's Office, War Department, as acting member of the interdepartmental social hygiene board, and as acting director of the social hygiene division of the commission on training camp activities. In 1919-1920 he was a lieutenant colonel in the medical reserve corps of the Army. Dr. Sawyer worked for many years with the Rockefeller Foundation. On June 1, 1919 he was appointed state director of the International Health Board of the Rockefeller Foundation, New York. He directed a hookworm campaign in Australia from 1919 to 1922 and from 1922 to 1924 was an adviser in public health to the Australian ministry of health. While there he was instrumental in organizing the Public Health Association in Australasia and was editor of *Health Forum,* which it published quarterly. He was an assistant regional director for the East from 1923 to 1924, and until 1927 he directed the foundation's public health laboratory service. Dr. Sawyer was a member of the West African Yellow Fever Commission of the foundation in 1926-1927 and, as associate director of the International Health Division, was in charge of the foundation's Yellow Fever Laboratory from 1928 to 1935. He is said to have prepared the first yellow fever vaccine. He became director of the foundation and served until 1944 when he retired. During the last four years he was director of the foundation's health commission. He was a member of the National Advisory Council of the U. S. Public Health Service from 1937 to 1940. During World War II, in addition to his work for the Rockefeller Foundation, Dr. Sawyer served as a member of the subcommittee on Tropical Diseases of the National Research Council, as director of the Commission on Tropical Diseases under the Army Epidemiological Board from 1940 to 1944, and as honorary consultant to the Medical Department of the Navy. From 1944 to 1947 he was a director of health of the United Nations Relief and Rehabilitation Administration. In 1948 he was secretary-general of the fourth International Congress on Tropical Medicine and Malaria in Washington, was convenor in 1939 for the section Virus and Viral Diseases of the Third International Congress for Microbiologists, and in 1938 a delegate to the Pan American Sanitary Conference in Bogota. Dr. Sawyer was a member of the advisory scientific board, Gorgas Memorial Institute from 1944 to 1946 and since 1946 a member of the board of directors. In 1936 and 1937 he was president and at one time was vice-president of the American Academy of Tropical Medicine, in 1934-1935 president of the New York Society of Tropical Medicine, 1943-1944 president of the American Society of Tropical Medicine, and in 1918-1919 acting general secretary of the American Social Hygiene Association. Dr. Sawyer was a specialist certified by the American Board of Preventive Medicine and Hygiene, a member of the Society of American Bacteriologists, Association of American Physicians, American Association of Immunologists, American Society of Parasitologists, American Epidemiological Society, American Society for Experimental Pathology, Association of Military Surgeons of the United States, the Harvey Society, Sigma Xi, and Alpha Omega Alpha; honorary member of the Societe Beige de Medicine Tropicale; corresponding member of the Societe de Biologie (Paris); and honorary life member of the Conference of State and Provincial Health Authorities of North America and the Tennessee Public Health Association. In 1926 he was cited Knight First Class Order of St. Olav (Norway) and in 1940 Gran Official Order of Carlos J. Finlay (Cuba). He won the first Leon Bernard Medal for his yellow fever research and medico-social protection to populations of many countries. The award was made in 1940 through the health committee of the League of Nations. At the meeting of the American Academy of Tropical Medicine Dr. Lewis W. Hackett of New York accepted the Richard Pearson Strong Medal for Dr. Sawyer four days following his death. In 1930 Dr. Sawyer delivered one of the DeLamar Lectures and in 1934 the third Harvey lecture. In 1945 he was awarded the LL.D. from the University of California.

**Hayden, Reynolds** ✠ Medical Director, Captain, U. S. Navy, retired, Chicago, died at the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Md., Feb. 5, aged 68, of pulmonary hemorrhage. Dr. Hayden had been associated with the American Medical Association as a field representative of the Council on Medical Education and Hospitals since December, 1950. He was born in 1883 and received his degree of doctor of medicine from Georgetown University School of Medicine, Washington, D. C., 1905, and interned at Providence Hospital, Washington, D. C. During the Spanish-American War he was appointed acting past midshipman and served aboard the *U. S. S. Bennington.* On March 7, 1907 he was appointed assistant surgeon in the Navy and as a junior officer served at the Naval hospitals in Washington, D. C., Annapolis, Md., and Norfolk, Va., and with the Marine Contingent attached to the Army in the Cuban Pacification Campaign. Prior to World War I he served aboard the *U. S. S. Massachusetts* and the *U. S. S. Alert* and at the outbreak of World War I was serving at the Naval Academy. In 1918 he was on the staff of the U. S. military governor of San Domingo, where for three years he was in charge of the department of sanitation. He made the Australia cruise in 1925 as the senior medical officer aboard the *U. S. S. Seattle.* In 1927 he was ordered to the Naval Academy as the senior medical officer, where he served until 1940. Following his tour of duty at Pearl Harbor in 1942 he became the medical officer of the Third Naval District with headquarters in New York. Dr. Hayden was placed on the retired list of officers of the Navy on Oct. 1, 1946. He then engaged in medical writing in Washington. He was a fellow of the American College of Surgeons. Dr. Hayden received a letter of commendation from the Secretary of the Navy for his services as commanding officer of the U. S. Naval Hospital at Pearl Harbor at the time of the Japanese attack on Dec. 7, 1941. Other decorations include the Spanish-American War Ribbon, the Cuban Pacification Medal, World War I Victory Medal with Star, and a campaign badge for duty with U. S. Marine Expeditionary Forces.

**Marshall, John Hugh** ✠ Findlay, Ohio; born in Findlay, Ohio, Aug. 22, 1900; University of Louisville (Ky.) School of Medicine, 1925; fellow of the International College of Surgeons and the American College of Surgeons; member of the American Goitre Association; colonel in the medical corps of the U. S. Army Reserve; during World War II spent 33 months in the Asiatic Pacific theater and was awarded three Bronze Service Stars and a Distinguished Unit Citation; member of the city board of health; served on the staff of Findlay Hospital; chief-of-staff, Blanchard Valley Hospital; director and vice-president of the Findlay Rotary Club; died in Evanston, Wyo., November 12, aged 51, in a Union Pacific train accident.

**Alenick, Daniel,** Brooklyn; University of St. Andrews Conjoint Medical School, St. Andrews and Dundee, Scotland, 1934; on the staffs of the Kings County Hospital and Jewish Hospital, where he died Dec. 15, aged 47, of coronary thrombosis.

✠ Indicates Fellow of the American Medical Association.

**Batzes, Harry** ✠ New York; Fordham University School of Medicine, New York, 1914; affiliated with Samaritan Hospital in Brooklyn and Gouverneur Hospital; died Dec. 15, aged 65.

**Campbell, Carl Herbert** ✠ Canfield, Ohio; Western Reserve University Medical Department, Cleveland, 1909; for many years president of the county board of education; served as president of the county board of health and the board of education of Canfield; a director and vice-president of the Farmers' National Bank of Canfield, and president of the Farmers Savings and Loan Bank of Canfield; died Nov. 16, aged 68, of coronary thrombosis.

**Chambliss, Frank Mark** ✠ Xenia, Ohio; Eclectic Medical College, Cincinnati, 1926; served as mayor and city commissioner; died Dec. 14, aged 54, of coronary occlusion.

**Clement, Samuel Anthony** ✠ Cambridge, Mass.; Boston University School of Medicine, 1914; member of the New England Pediatric Society; on the staff of Chester Hospital; on the courtesy staff of Mount Auburn Hospital; died Dec. 14, aged 64, of coronary thrombosis.

**Draesel, Charles,** North Bergen, N. J.; Kentucky University Medical Department, Louisville, 1906; served on the staff of North Hudson Hospital in Weehawken; died in Norwood Dec. 1, aged 83, of heart disease.

**Earl, Warren Zachary,** Los Angeles; University of Illinois College of Medicine, Chicago, 1913; formerly practiced in Sioux City, Iowa, where he was past president of the Woodbury County Medical Association and on the staffs of the Methodist and St. Joseph Mercy hospitals; died Nov. 19, aged 67, of dissecting aneurysm of the abdominal aorta.

**Edler, William August** ✠ Pasadena, Calif.; Washington University School of Medicine, St. Louis, 1911; an Associate Fellow of the American Medical Association; formerly associate professor of neuropsychiatry at College of Medical Evangelists, Loma Linda and Los Angeles; specialist certified by the American Board of Psychiatry and Neurology; at one time affiliated with the U. S. Public Health Service Reserve; on the staff of the Collis P. and Howard Huntington Memorial Hospital; died Oct. 5, aged 69, of coronary occlusion.

**Ellis, Walter Sidney,** Fordyce, Ark.; Memphis (Tenn.) Hospital Medical College, 1912; died in Little Rock Nov. 22, aged 68.

**Fitzgerald, Robert Peter Francis,** Irvington, N. J.; Temple University School of Medicine, Philadelphia, 1940; formerly affiliated with Veterans Administration Hospital in Lyons; member of the American Psychiatric Association; served during World War II; found dead Dec. 17, aged 35.

**Gillis, John Ewen,** Somerville, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1904; member of the American Medical Association; died Dec. 15, aged 72.

**Hartinger, William Minx** ✠ Spring Valley, Ohio; Ohio State University College of Medicine, Columbus, 1916; died in Miami Valley Hospital, Dayton, Nov. 29, aged 57, of coronary occlusion.

**Heeley, John Adelbert,** Chillicothe, Ohio; Cleveland Homeopathic Medical College, 1908; member of the American College of Radiology; specialist certified by the American Board of Radiology; served during World War I; formerly on the staff of St. Joseph's Hospital in Warren; died in the Veterans Administration Hospital Nov. 28, aged 67, of rupture of the descending aorta and arteriosclerosis.

**Jones, George William,** Pomona, Calif.; University of Cincinnati College of Medicine, 1925; past president of the New Mexico Medical Society; served during World Wars I and II; on the staff of Pomona Valley Hospital, where he died Oct. 8, aged 51, of a heart attack.

**Kittelson, Olaf,** Zumbrota, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1912; served during World War I; a fellow at the Mayo Clinic in Rochester, Minn., for two years; on the staff of the Willmar (Minn.) State Hospital; died in Willmar Dec. 5, aged 64, of bronchial asthma with cerebral anoxia.

**Lieblong, John S.** ✠ Greenbrier, Ark.; University of Arkansas School of Medicine, Little Rock, 1911; secretary and past president of the Faulkner County Medical Society; on the staff of Conway Memorial Hospital, where he died recently, aged 70, of acute coronary occlusion.

**Look, Percy Jonathan** ✠ Andover, Mass.; Harvard Medical School, Boston, 1912; member of the New England Pediatric Society; formerly councilor of the Massachusetts Medical Society; past president of the Essex North District Medical Society; for many years chairman of the board of health of Andover; on the staff of the Lawrence General Hospital; died Dec. 9, aged 67.

**Meinhardt, Maximilian,** Chicago; Harvey Medical College, Chicago, 1903; died in Kenner Hospital December 1, aged 81, of hypostatic pneumonia and arteriosclerosis.

**Murphy, James Augustine** ✠ Trenton, N. J.; Georgetown University School of Medicine, Washington, D. C., 1927; for many years on the staff of Mercer Hospital; died Dec. 5, aged 47, of cerebral hemorrhage.

**Rowell, Edward Everett Jr.,** Greenwich, Conn.; Hahnemann Medical College and Hospital of Philadelphia; 1899; died December 2, aged 73, of a heart attack and lobar pneumonia.

**Schroeder, Henry H.,** Verona, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1886; retired medical director of Mutual Life Insurance Company; formerly Essex Fells councilman; died Dec. 2, aged 90.

**Shea, Timothy Thomas** ✠ San Francisco; Stanford University School of Medicine, San Francisco, 1915; on the staff of St. Mary's Hospital; died Dec. 2, aged 60, of coronary occlusion.

**Sickley, Fred Leonard,** Leonore, Ill.; Illinois Medical College, Chicago, 1904; served on the staff of St. Mary's Hospital in Streator; died December 2, aged 85, of coronary heart disease.

**Tiffany, Braden Charles,** Middlefield, Ohio; Cleveland Homeopathic Medical College, 1905; died Nov. 2, aged 72, of congestive heart failure.

**Vaughan, John Russell,** St. Louis; Washington University School of Medicine, St. Louis, 1910; member of the American Medical Association; certified by the American Board of Obstetrics and Gynecology; formerly member of the board of education in University City, Mo., where he had been president of the board for two years; served in France during World War I; formerly on the faculty of his alma mater; on the staff of St. Luke's Hospital, where he died Dec. 4, aged 63, of pneumonia.

**Wallen, Benjamin Bertram,** Wildwood, N. J.; Syracuse University College of Medicine, 1929; member of the American Medical Association; served during World War II; on the staff of the Burdett Tomlin Memorial Hospital, Cape May C. H., N. J.; died in Walter Reed General Hospital, Washington, D. C., Dec. 4, aged 48, of Hodgkin's disease.

**Wheeler, John Tipton** ✠ Indianapolis; Eclectic Medical Institute, Cincinnati, 1889; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; an Associate Fellow of the American Medical Association; professor of anatomy at Indiana University School of Dentistry, retiring in 1940; served during World War I; for many years affiliated with Methodist Hospital, where he died December 4, aged 84, of cerebral hemorrhage.

**White, Marcus Demosthenes** ✠ Ontario, Calif.; Washington University School of Medicine, St. Louis, 1920; past president of the San Bernardino County Medical Society; past president of the medical staff and member of the board of trustees of San Antonio Community Hospital in Upland; served during World War II; died Nov. 27, aged 57, of carcinoma.

**Williams, Edward Charles,** Port Trevorton, Pa.; College of Physicians and Surgeons, Baltimore, 1903; died in George F. Geisinger Memorial Hospital in Danville, Nov. 30, aged 70, of diabetes mellitus.

**Wright, Frank O.,** Miami, Fla.; Baltimore University School of Medicine, 1897; died in St. Augustine, Oct. 16, aged 87, of hypostatic pneumonia.

# GOVERNMENT SERVICES

## ARMY

**Exhibit of Pharmacopoeias.**—An exhibit on the precursors of modern pharmacopoeias was shown in the Army Medical Library in February. An 1875 Leipzig printing of the oldest one, the Papyrus Ebers written about 1550 B. C. but incorporating much earlier material, now lost, was displayed. For each of the 700 remedies listed, the composition, dosage, method of administration, and the condition for which it is best suited are given. Some modern drugs, such as castor oil, opium, aloes, anise, and gentian, are shown to have been in use 3,500 years ago.

Also shown in the exhibit were Galen's work on drugs, the *Materia Medica* of Dioscorides, who acquired much of his knowledge of drugs while traveling with Nero's army, and Mesue's *Grabadin*, the translation into Arabic of the Greek and Latin pharmacopoeias. All of these works, and many others, were used as the basis for the municipal pharmacopoeias which developed with the rise of cities in the 15th and 16th centuries.

Of special interest in the exhibit was the little *Pharmacopoeia simpliciorum et efficaciorum in usum nosocomis militaris ad exercitum foederatarum Americae civitatum, 1778*. It was the first pharmacopoeia printed in the United States and was compiled for use in the Continental Army by Dr. William Brown, Surgeon in charge of the Continental Army Hospital at Lititz, Pa. The first American national pharmacopoeia appeared in 1820 and was compiled by medical school representatives meeting in New York City. Plans were made then for revising this pharmacopoeia every 10 years thereafter; our present U. S. P. is a direct lineal descendant of this early work.

**Art Section of the Army Medical Library.**—There are now more than 21,000 pictures and nearly 13,000 negatives in the art section of the Army Medical Library. Writers, editors, and publishing companies make frequent use of this picture material. The greatest number of calls are for portraits of physicians, military medical officers, nurses, historical material, hospital pictures, and medical subjects. This service to the public is steadily increasing. The library is grateful to receive additional pictorial material of medical interest. Gift pictures or information on pictures available for purchase should be addressed to the Catalog Division of the Medical Library, Seventh Street and Independence Ave., S. W., Washington, D. C.

## PUBLIC HEALTH SERVICE

**Fluoridation of Public Water Supplies.**—A total of 173 communities have added fluorides to their water supplies as of Jan. 15, 1952, according to the Division of Dental Public Health. The population served by these water supplies is more than 4 million. The communities range in size from 100 persons (Mansfield, Conn.) to 424,683 (Indianapolis). The largest number of cities in any state is in Wisconsin, which has 64 communities fluoridating their water. More than 60% of these fluoridation programs were initiated within the past year, although three of them were begun in 1945.

**New Chief of Division of Foreign Quarantine.**—Dr. Calvin B. Spencer has been appointed chief of the division of foreign quarantine and Dr. Gilbert L. Dunnahoo chief of medical programs in Federal Security Agency Region 10, San Francisco. Dr. Spencer succeeds Dr. Dunnahoo in this FSA division. As chief of foreign quarantine, he heads the agency responsible for preventing the importation of infectious diseases into the United States and for the medical examination of aliens requesting admission into this country. The division operates 243 stations at seaports, airports, and points of border crossing in the U. S. and its possessions. Officers are also maintained at 24 U. S. embassies and consulates. During the past fiscal year, ending July, 1951, more than 31 million persons were checked by quarantine, and 28,000 planes and 20,000 ships were inspected. Not one case of a quarantinable disease was imported into the country.

As chief of medical programs for FSA's Region 10, Dr. Dunnahoo will be responsible for programs on tuberculosis control, venereal disease, heart disease, cancer, environmental health, and public health nursing, which are now being operated in cooperation with the states and territories. Region 10 includes California, Arizona, Nevada, Oregon, Washington, Hawaii, and Alaska.

**Foreign Students in the U. S.**—With the start of the second term in the academic year, 13 physicians, dentists, and nurses from six foreign countries have come to the United States to study under the sponsorship of the Public Health Service in cooperation with the Mutual Security Agency and Point 4 programs. Of the 12 trainees, 5 are women and 8 men. They have come from Iran, Burma, Thailand, Greece, Mexico, and Brazil for periods of four months to one year. Four of the physicians are primarily interested in surgery, one in public health administration, one in serology, one in tuberculosis, and one in anesthesiology. Three of the women trainees are nurses, and the other two are dentists.

## VETERANS ADMINISTRATION

**New Hospital Managers.**—Dr. Francis W. Ogg, chief of professional services at the Veterans Administration Center, Hot Springs, S. D., has been appointed manager of the center, succeeding Dr. Carl A. Neves, who retired Oct. 31. The Hot Springs Center consists of a hospital of 270 general medical and surgical beds and a domiciliary of 545 beds.——Dr. Linus A. Zink, manager of the new Brooklyn hospital, has been assigned in the same capacity to Mount Alto hospital, Washington, D. C., succeeding Dr. Charles M. Griffith who has retired after more than 34 years of government service.——Dr. J. Gordon Spendlove, chief medical officer, Veterans Administration Center, Fort Harrison, Mont., has been appointed manager of the Portland, Ore., VA Hospital effective February 1, succeeding Dr. Paul I. Carter who retired Jan. 31, 1952.——Dr. John B. McHugh, manager of the 162-bed Veterans Administration Hospital at Minot, N. D., will become manager of the 498-bed VA hospital at Kansas City, Mo., which is under construction. Dr. McHugh will succeed the late Dr. Willis M. Manney, who died in December, 1951.——Dr. George O. Pratt, manager of the VA hospital at Manchester, N. H., has been appointed manager of the VA Hospital in Brooklyn, succeeding Dr. Linus A. Zink who was transferred to the Mount Alto Hospital in Washington, D. C., where he is serving as manager.

## MISCELLANEOUS

**Grants for Basic Research.**—The National Science Foundation has approved 28 research grants, totaling $410,000, in the field of the biological sciences. This is the initial group of grants that will be made under the foundation's program for support of basic research in the sciences. The total value of these grants represents slightly less than 40% of the funds available to the foundation for support of basic research for the current fiscal year. Additional proposals are being evaluated by the foundation with the advice of an advisory panel drawn from more than 50 outstanding American scientists.

The research fields included are biochemistry, enzyme chemistry, biophysics, systemic biology, microbiology, aquatic biology, experimental embryology, genetics, immunology, experimental plant biology, and photosynthesis. The duration of grants in the initial group ranges from one to five years, with an average length of two and three-tenths years. The average grant amounts to $6,300.

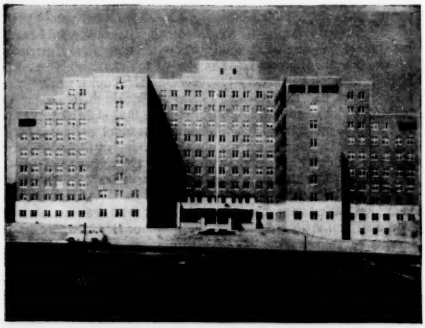
# NEW VETERANS HOSPITALS COMPLETED DURING 1951

The new veterans hospitals illustrated on this page were completed during the calendar year 1951. As of Jan. 31, 1952, the Veterans Administration had 153 hospitals in operation, with a total bed capacity of 115,812; of these 31 were military and other hospitals transferred to the VA. Of the 153 hospitals, 20 were tuberculosis hospitals, 34 neuropsychiatric, and 99 general medical. As of that date, 24 new hospitals and 3 additions to existing hospitals with a total bed capacity of 15,440 and 1,192, respectively, were under construction; in addition 6 new hospitals with a total bed capacity of 5,000 and one addition to an existing hospital were in the planning stage. Illustrations of new veterans hospitals completed during the calendar years 1949 and 1950 appeared in THE JOURNAL, May 6, 1950, page 123, and March 10, 1951, page 748.

MADISON, WISCONSIN (500 beds)

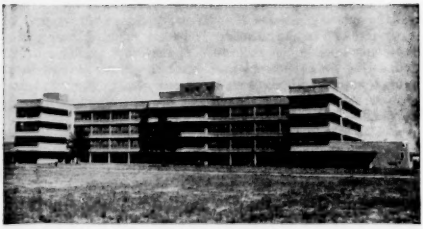
SEATTLE, WASHINGTON (300 beds)

ALBANY, NEW YORK (1,000 beds)

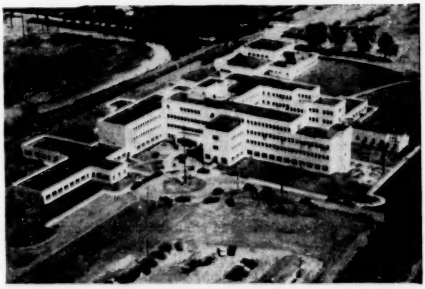


DENVER, COLORADO (500 beds)

ERIE, PENNSYLVANIA (200 beds)



BONHAM, TEXAS (350 beds)



PHOENIX, ARIZONA (200 beds)

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1952

# FOREIGN LETTERS

## BRAZIL

**Spinal Anesthesia in Obstetric Cases.**—Drs. B. Neme, J. Onofre Araujo, and B. Horo, of the obstetric department of Hospital das Clinicas, São Paulo State University, published an analysis of the use of anesthesia in 482 patients attended in that department. At first, the method of anesthesia chosen by the anesthesiology service frequently did not coincide with that indicated by the obstetrical department, but a better adjustment between the two services has been attained. The methods of anesthesia used on the 482 patients were categorized as follows: spinal anesthesia, 247 patients (51.3%); gas anesthesia, 161 (33.4%); local anesthesia, 58 (12.0%); and mixed anesthesia, 16 (3.3%). Of the 482 patients, there were 222 who had forceps delivery (46.0%), 208 who had cesarean section (43.2%), 27 patients with ectopic pregnancies (5.6%), 14 who had cranioclasis (2.9%), and 11 who had a uterine rupture (2.3%). Spinal anesthesia was used oftenest in cases in which forceps were applied. The authors point out that spinal anesthesia is being used oftener in cases of cranioclasis, particularly when forceps are used. An exception to the generalized use of spinal anesthesia is in cases of low fetal presentation.

The authors made a comparative study of the different methods of anesthesia and their relationship to blood pressure, to the necessity of blood transfusion, and to neonatal asphyxia. Although arterial hypotension is one of the most undesirable effects of subarachnoid block, in 397 cases in which spinal anesthesia or gas anesthesia was used, the former method caused a drop in systolic pressure of 34.2 mm. of Hg against 36 mm. Hg for the latter. According to the condition of the patient and the surgical procedure performed, the drops in systolic pressure were 29 mm., 39 mm., 30 mm., and 20 mm. Hg for spinal anesthesia and 31 mm., 46 mm., 36 mm., and 17 mm. Hg for gas anesthesia, in forceps application, cesarean section, cranioclasis, and ectopic pregnancy, respectively. According to the authors, the fewer number of patients needing blood transfusions is important proof that spinal anesthesia is the method of anesthesia best adapted to the physiology of parturition. In 386 cases in which spinal anesthesia or gas anesthesia was used in patients who had forceps application, cesarean section, or ectopic pregnancy, there was need of blood transfusion in 12.2% of the patients given the former method of anesthesia, whereas this was necessary in 22.3% of patients using the latter method. Neonatal asphyxia was present in 6.9% of the cases in which spinal anesthesia was used, whereas this rate was 11.8% for those who had gas anesthesia. There were no maternal deaths due to anesthesia.

The authors conclude by discussing the advantage of spinal anesthesia, especially the saddle block, for vaginal deliveries and emphasize that the ideal level for obstetric purposes is $D_{11}$-$D_{12}$ for vaginal routes and $D_6$-$D_5$ for abdominal obstetric surgery; they claim that a parallelism exists between the depth of the anesthesia obtained and the degree of hypotension present in the patient.

**Efforts Toward Eradication of Anopheles Darlingi.**—Dr. Fernando M. Bustamante, epidemiologist of the National Service of Malaria, reported to the Brazilian Malaria Association on results of the work done to exterminate Anopheles darlingi. A. darlingi, the most domestic species of the malaria vector mosquitoes in South America, comes into human dwellings in search of food. Despite the domesticity of this species, the frequency of A. darlingi attacking man and animals outdoors varies widely. This frequency, which defines the index of zoophilism of the species, is, in general, higher in Brazil than in Venezuela and British Guiana. In Brazil, the index of zoophilism of A. darlingi is higher in the central uplands than in the coastal lowlands. In consequence of this fact, the effect of DDT is variable. Whereas, in Venezuela and British Guiana, this mosquito has or is being eradicated from great areas where the only antimosquito precaution is biannual house spraying, in Brazil, DDT did not produce the same result. A. darlingi is still being found in sprayed areas.

The possibility of eradication of A. darlingi depends on the tendency of this species to feed outdoors, the probability of eradication being inversely proportional to this tendency. Data given by the author for the coastal lowlands of the state of Rio de Janeiro and the central uplands of the São Francisco river valley give hope of eventual eradication of A. darlingi from the coastal districts, as it seems that this species is becoming scarce in the coastal districts of the state of Rio de Janeiro. It is not probable, however, that the same result can be obtained in the central uplands, where, in spite of spraying, A. darlingi continues to be caught either in the adult state or in the larval stage.

**Heterologous Antibodies in Virus Hepatitis.**—There is a need of other tests, besides clinical and histopathological data, for the diagnosis of virus hepatitis. Among the proposed serologic tests are the antisheep hemagglutinins tests whose conclusions can only be accepted with important restrictions regarding the low agglutinin titers, the lack of absorption tests or details of technique, and the criterion for the corresponding clinical diagnosis.

In attempting to overcome these restrictions, Drs. Paulo de Goes and Clementino Fraga Filho, of Rio de Janeiro University, studied 36 samples of serums from patients who had clinical, laboratory, and histopathological diagnosis of virus hepatitis. The patients were tested for antisheep hemagglutinins. The identification of these heterologous antibodies was based on their behavior as antigens in absorption tests with guinea pig kidney, rabbit kidney, ox heart, ox red cells (heated), and human liver (nonheated). Of the 36 serum samples, 26 (72.2%) showed an antisheep titer of 1:56 or more, and 10 (27.8%) showed titers below that value. In nine of the samples, with titers 1:56 or higher, and, in five of those with a lower titer, an antibody was identified (H antibody) differing from those already described and showing the peculiarity of being removed (completely or almost completely) from all the antigens used. In three cases, the heterologous antibody behaved the same as the H antibody in absorptions with four of the antigens, differing only from one. Of the other 19 patients, 12 showed antibodies of known types, and, in 7, the antibodies were not identified. The highest antisheep hemagglutinating titers and the H antibody were usually present in patients in whom the serums were tested 20 days after the onset of jaundice. Before this, the titers were usually low or did not show the typical behavior of the antibodies previously mentioned. In normal persons and patients with other diseases, heterologous antibodies, identical to those observed in some cases of virus hepatitis, were not found.

**Pathogenicity of Shigella Quetta-454 in São Paulo.**—During the past two years, isolations of Shigella and Salmonella have been made by the Public Health Department of Araraquara, state of São Paulo. In the second half of 1950, Shigella quetta-454, Sachs (1943), was isolated on 19 occasions from persons suffering from diarrhea or dysentery and persons presumed to be carriers. Drs. Carlos S. Vernin and Ruy Soares of that city's public health laboratory are studying this micro-organism, which, as far as the authors know, is now being identified for the second time in Brazil. The author also reports clinical and laboratory data that may contribute to the knowledge of the pathogenicity of this species. Homologous antibodies were found in none of the cases. Twelve patients showed symptoms of diarrhea and dysentery, and two cases were complicated by the presence of trophozoites of Endameba histolytica. In 10 cases no other cause could be found, and the patients responded to treatment with sulfaguanidine, sulfadiazine, and succinylsulfathiazole (sulfasuxidine®). Six isolations were made from carriers without symptoms and one isolation was from an unclassified patient. New cases, which are still being found with the same etiology and in the same area, are to be reported in the near future.

The items in these letters are contributed by regular correspondents in the various foreign countries.

## LONDON

**The General Practitioner and the Hospital Service.**—A report was published in response to a request by the secretary of state for Scotland to the Scottish Health Services Council, the statutory body that advises him on health service, to consider and advise him on the relationship between the general practitioner and the hospital service. This is a problem that has given increasing concern since the inauguration of the National Health Service. The report states that there is "an obvious need for a closer link between the general practitioner and the hospital and specialist services," and it calls for "early action" on several of its recommendations. "The general practice of the family doctor is the basis of a comprehensive medical service. The general practitioner must be much more than an agent to select patients for the nearest out-patient department or hospital, his own responsibility limited to the treatment of minor ailments." If the practitioner is to have time to devote to hospital work, some reorganization of general practice is required, e. g., by the provision of adequate secretarial help, the extension of group practice, and the possibility of the practitioner limiting his list of patients without loss of remuneration. A revision of the hospital and specialist organization is required, which will include physicians engaged in specialist practice, engaged in training for specialist practice, and engaged both in general and in specialist practice, and house officers. The practitioner undertaking part-time work in a hospital must be regarded as a member of the hospital team; he must not be regarded as a supernumerary member of the staff with no specific duties.

The principle to be established is that "there should be no barrier to the part-time employment in a specialist capacity, of the suitably experienced and qualified general practitioner." The fields in which there is scope for the part-time specialist include general medicine, pediatrics, geriatrics, dermatology, anesthetics, and ophthalmology. "There is also a strong case for the extended employment of general practitioners as clinical assistants, responsible under the charge of specialists for the regular care of patients and carrying out duties similar to those of registrars."

It is considered that "there is a very strong case for giving the practitioner the fullest scope for conducting the normal confinement of those of his patients who have booked for admission to hospital. . . . If practitioners generally are capable of supervising domiciliary confinements it can hardly be contended that they are incapable of conducting normal confinements in hospital. . . . If the present tendency to restrict the practitioner's part in institutional midwifery is not reversed there will undoubtedly be a decline in the standard of domiciliary practice . . . there is in fact a serious danger that midwifery will cease to be a basic part of general practice."

After reviewing all the arguments pro and con, the authors of the report "consider that there is a strong case for the provision of beds in which general practitioners can treat their own patients." For this purpose, hospitals are divided into three categories: cottage hospitals, district hospitals, and central hospitals. Cottage hospitals, i. e., small local hospitals, usually with 20 to 30 beds, should be maintained as general practitioner hospitals, and the fullest opportunity should be taken for regular visits by specialists. In district hospitals, i. e., general hospitals outside the main teaching centers, there is, at the moment, little scope for general practitioner beds. The same applies to central or teaching hospitals, but it is considered that there is much to commend the establishment of a general practitioner block associated with these large hospitals. In these, general practitioners would undertake the care of such patients as could not be treated at home but who did not need specialist treatment. Future policy should also envisage the setting up of general practitioner hospitals in suitable areas, organized as independent units but working in association with parent general hospitals providing a full range of specialist treatment.

Many other recommendations are made, dealing with such matters as increased access for general practitioners to ancillary services and refresher courses as well as attendance of general practitioners at ward rounds and outpatient sessions. The report has been accepted as one of the ablest and most practical that has yet been published in this country.

**Electrical Safety in Hospitals.**—It is announced in *Anaesthesia* that the Association of Anaesthetists of Great Britain and Ireland has been informed by the Ministry of Health that the Minister of Health has appointed "two professional qualified electrical engineers who have had active experience in developing and applying the precautions and safe techniques lying within the engineering field in environments carrying explosive risks and whose duty it will be to advise hospital authorities on these and related matters." These officers are to arrange a program of visits to hospitals throughout the country to discuss electrical problems with the appropriate members of the hospital staffs, such as surgeons, anesthetists, operating theater attendants, and engineers. In this way, they hope to promote improved engineering design and practice and "the development of materials suitable for use in hazardous environments and of equipment and appliances which provide greater intrinsic safety without sacrificing performance." They will also visit hospitals in which electrical accidents have occurred, so that they can discuss the matter with the staffs. In addition, they will advise the technical staffs of hospitals as to what plans are being worked out for the construction, reconstruction, or equipping of operating theaters and labor rooms.

**Shortage of X-ray Films.**—In December a letter was sent to medical practitioners by the Chief Medical Officer of the Ministry of Health, drawing their attention to the serious shortage of x-ray film and appealing for their help in making the best possible use of the available supplies. He pointed out that in England usage during the first six months of 1951 was 16% greater than in the corresponding period of 1950 and 60% greater than in 1947. About the same time the President of the Board of Trade reported in Parliament that during 1951 the amount of x-ray film supplied to the home market was likely to be about 7½% more than during 1950, but that, in spite of this, difficulty was still being encountered in meeting demands from hospitals.

This serious state of affairs has given rise to many rumors as to the cause of the shortage. Both manufacturers and the ministry imply that the shortage is primarily due to increased demand, and the former deny that shortage of raw materials, faulty distribution, or increased export demands are responsible. On the other hand, the figures for export are impressive. In 1949 the amount of film exported during the 11 month period, January to November, was 7,591,000 sq. ft. During the corresponding period in 1951 the figure was 13,997,000 sq. ft. As the *British Medical Journal* points out, an average teaching hospital uses about 130,000 sq. ft. annually. The film exported in June, 1951, was 3,746,000 sq. ft. and would have supplied the needs of 28 teaching hospitals for a year.

Whatever the cause and actual supply situation, economy is called for, and in his letter the Chief Medical Officer appeals to hospitals to exercise strict economy in the use of film and to eliminate waste, particularly in processing. Practical suggestions, which he advances to achieve this aim, include: (*a*) detailed specification by clinicians of the problem to be elucidated and the part to be examined, (*b*) spacing the reexamination of patients at longer intervals, (*c*) allowing only experienced clinicians and not junior house officers to make requests for x-ray examinations, and (*d*) reduction of the number of films used in any one examination.

Whether further economies can be achieved is a matter of considerable debate. *The Lancet* considers that they can, but the *British Medical Journal* states that "it is safe to say that further economy in x-ray departments will be very difficult to obtain." At the same time, the latter journal points out that a considerable saving could be achieved by a greater use of miniature film in chest clinics, and it also reminds its readers that tomography is expensive in film, often with results that are not commensurate with this expenditure. The Joint Tuberculosis Council reports that any further deterioration in supplies will result in widespread impairment in the chest services and points out that one of the hazards of present-day radiology in this country is the electricity cuts that may lead to the spoiling of many films. Dr. J. F. Brailsford, the well-known Birmingham radiologist, on the other hand, believes that "a careful census of films used would show that wastage was in the region of 70% and often over 90%, and the tuberculosis and chest service

V 14
1952

would top the list in waste." Out of the medley of conflicting views, three facts emerge. 1. There is a serious shortage of x-ray film at the moment. 2. This shortage is primarily due to increased usage since the introduction of the National Health Service. For instance, entirely apart from replacement of existing apparatus, 560 major x-ray units have been established in various clinics during the last two years. 3. Some degree of economy could be attained, provided clinicians were more precise and restrained in their demands and radiologists used the minimum number of films for any one patient.

## SPAIN

**Congress on Rheumatology.**—The Second European Congress of Rheumatology was recently held in Barcelona. Prof. A. Pedro y Pons was president. Delegates from European countries, the United States, and Latin America were present. The inaugural speech was made by Dr. Barceló, secretary of the Congress. Other speakers were Prof. A. Pedro Pons, Professor Soriano, dean of the faculty of medicine at the University of Barcelona, Dr. W. S. C. Copeman, president of the European League Against Rheumatism, Dr. Ejnar Jarlov, president of the International League Against Rheumatism, Dr. A. Rjiz Moreno, delegate of the Pan-American League, and the governor of the city, who welcomed the delegates. Official topics were ankylosing spondylarthritis, ultrasonics, progress in endocrinology, nonarticular rheumatism, and brucellar rheumatism.

Official speakers on ankylosing spondylarthritis were Drs. Forestier, Certonciny, Jacqueline, Rotés Querol, H. Van Swany, and J. Goslings. Bound copies of the papers concerning the clinical and roentgen aspects, pathology, and nosology of ankylosing spondylarthritis were distributed. Among the conclusions that were reached by the speakers were: 1. Ankylosing spondylarthritis is a chronic disease with three progressive phases: (*a*) a phase of development, with almost imperceptible limitation of the movement of the vertebral column, (*b*) a phase of establishment of the disease, with limitation of movement of the upper third of the vertebral column and an increasing limitation of movement of other vertebral segments, and (c) an advanced stage, with complete ankylosis of the vertebral column. 2. Diagnosis is based on the characteristic roentgen changes of the sacroiliac joints, which appear early. 3. Spondylarthritis, like progressive chronic polyarthritis and acute articular rheumatism, is a syndrome of unknown etiology. 4. Necropsy of three patients who had been under clinical observation for several years showed the typical diffuse proliferation of nonvascular cartilages in the intervertebral and sacroiliac joints, which leads to ankylosis of the cartilages.

Drs. A. Boni of Zurich and K. Matthes of Erlangen discussed ultrasonics. Dr. Boni said, "The mechanism of action of ultrasonics in treatment of rheumatic diseases is not clear. The basis of this treatment is largely empirical. Because of their sedative properties their use results in improvement of articular function and of muscular hypertonicity in degenerative rheumatism." Dr. Matthes reported that the effect of ultrasound on the human body is mainly due to the production of heat. The harmful effects of ultrasound obtained in animals are attributable to the use of excessive doses. Late lesions from application of ultrasound, comparable to those produced by roentgen ray therapy, never occur.

Dr. A. Robecchi of Turin, and Drs. Cirera Voltá, Pedro y Pons, Braceló Torrent, Vilaseca Sabater, Rotés Querol, and Batalia Boixet, all of Barcelona, discussed brucellar rheumatism. They reached the following conclusions: primary brucellar rheumatism may simulate other forms of rheumatism, arthritis, and spondylitis, caused by organisms other than Brucella, and may also resemble tuberculosis of the bones. The symptoms of primary brucellar rheumatism are similar to those of the osteoarticular complications of septicemic brucellosis; however, the symptoms of primary brucellar rheumatism are benign and reversible. A diagnosis is based on the following findings: brucellar spleen, positive results of the serum diagnosis, and favorable biologic response to the intravenous administration of brucellar antigens. The intravenous administration of increasing doses of brucellar lysates constitutes the specific cure for primary brucellar rheumatism of the locomotor system.

## SWEDEN

**Adoption of a Medical Code of Ethics.**—The formal adoption of a medical code of ethics by the Swedish Medical Association, in 1951, is an event that necessitated much preparatory work. The World Medical Association is responsible for the new international code of ethics, and it is largely on this that the Swedish code has been modeled. It is pointed out, in an editorial note, in the Jan. 5, 1952, issue of *Svenska Läkartidningen* (the organ of the Swedish Medical Association) that the new code is neither reactionary nor revolutionary if the principles of western culture are held to be valid. The Swedish code consists of 15 rules; the first rule informs the physician that he must serve his fellow beings in conformity with the injunction to love one's fellow men. According to the fifteenth rule, the doctor must not participate in the care of the sick when he is not assured of complete freedom to act in conformity with medical rules; he must not deviate from those rules, even under the stress of a threat of serious consequences.

In conjunction with the new Swedish code, there is a radical revision of the conditions under which physicians may advertise. The Swedish Medical Association weighs the merits of each claim for advertising before endorsing it. There are 25 fields in which a Swedish doctor may specialize and about which he may publicly claim special knowledge. In addition to familiar fields of specialization, such as diseases of the eye, there are comparatively new fields, such as plastic surgery and disturbances of the voice and speech. In order to advertise that he is a specialist, a physician must show that he has spent five years in the postgraduate study of his specialty; for example, to call himself a bacteriologist and immunologist, he must prove that he has served three years in an authorized bacteriological laboratory, half a year in an infectious disease hospital, half a year in a general hospital, and another year in a special hospital for diseases such as tuberculosis or venereal disease.

**The Late Professor Alfred Pettersson.**—Dr. Alfred Pettersson, who was born on June 14, 1867, and died on Dec. 3, 1951, had a long and distinguished career as a bacteriologist. At first, he took an interest in ophthalmology and pathological anatomy, and it was not until the turn of the century that he began to devote his energy to bacteriology. Between 1907 and 1909, he was in charge of the bacteriological laboratory of the public health service of Stockholm. Between 1909 and 1919, he served as professor and director of a national bacteriological laboratory. In 1912, he was appointed professor of hygiene and bacteriology at the University of Uppsala. In 1918 and 1919, he was chairman of the Swedish Medical Society, and he edited the journal and transactions of this organization from 1919 to 1939. Since 1939, he has been an honorary member of this society. The many generations of medical students and physicians who were Professor Pettersson's pupils learned to appreciate his high standard of scientific sincerity. His logical thinking and incisive speech made him an effective teacher and an opponent to be respectfully encountered in debate.

**Death of Professor Kahlmeter.**—Dr. Gunnar Kahlmeter, who died last fall, played a distinguished part as Sweden's leading rheumatologist. He was born in Stockholm, on Aug. 10, 1885. In 1918 he took the degree of Doctor of Medicine, with a thesis on spondylitis deformans. He was put in charge of the Sabbatsberg Hospital in 1919. In 1925 he was made head of the Åsö Hospital, where he remained till 1945, when he was given charge of one of the medical departments of Södersjukhuset. He became a professor in 1946. His retirement in 1949 was due to failing health. While on the staff of the Government Pensions Organization he completed what was, perhaps, his most important work, a statistical analysis of the causes of invalidism. This work established his international reputation as a rheumatologist. He was the founder of the international organization La Ligue Internationale contre le Rhumatisme and was the recipient of various national and international honors. His scientific and popular publications largely concerned the problems of rheumatism.

## TURKEY

**Streptomycin and Sulfone Therapy in Leprosy.**—Prof. Halil Gürün, Turkish dermatologist, graduate of Istanbul University, and currently of Kabul (Afghanistan) Medical School, has published the results of streptomycin therapy in 4 patients and of sulfone therapy in 10 patients with leprosy. The first patient was a man, aged 42. His body was covered with lepromas, and he had hoarseness, anesthesia, thermic anesthesia, and a profusion of Hansen bacilli in the lesions and nasal secretion. He was given an injection of 0.5 gm. of streptomycin twice daily for 10 days, which resulted in enlargement and softening of the lepromas, increase of hoarseness, and increase in Hansen bacilli in the nasal secretion. A few days later, ulceration occurred. A week later, i. e., 28 days after the initiation of the therapy, almost all lepromas had healed, and bacilli in the nasal secretion had decreased considerably. There was no intolerance, and the therapy was continued. During the following 37 days, the patient's condition further improved. After the administration of iodine, bacteriological examination proved the absence of Hansen bacilli. The therapy was continued. During the three months at the clinic, the patient received a total of 95 gm. of streptomycin. He insisted on being discharged but returned to Kabul 10 months later, at which time bacteriological examination confirmed the absence of Hansen bacilli. During this period there had been no clinical remission.

The second patient was a 34-year-old man from Turkistan. He was given a daily dose of 1 gm. of streptomycin for about three months, until he had received a total dose of 78 gm. Lepromas on the skin and Hansen bacilli disappeared. Since there was no law to enforce segregation, the patient left the clinic to return to his native Turkistan, but he purchased 100 gm. of streptomycin for his treatment there. Six months later he returned for reexamination, which revealed that he was free from clinical and bacteriological symptoms.

The third patient, a boy aged 14, was a native of Bisut, a Mongol Turkish colony and a district for lepers. The patient had large morphea alba patches on the heels and soles, atrophic scars on the body, anesthesia and thermoanesthesia on most of the skin, and Hansen bacilli in ulcerations and the nasal secretion. This patient was given 0.5 gm. of streptomycin daily for six months for a total dose of 92 gm. At the end of two months the ulcerating areas had healed, the morphea alba patches had regressed, and atrophy of the muscles subsided. By the end of the third month the patient was almost free from clinical manifestations; bacilli in the nasal secretion had completely disappeared, and they did not reappear during the rest of the treatment. Except for a few minor symptoms, there were no signs of intolerance. The patient was seen again seven months after discharge, and, on reexamination, no clinical or laboratory evidence was found.

The fourth patient, a 57-year-old native of Kabul, had swelling of the fingers and blisters on the hand, which developed into ulceration, and which had first appeared four years previously. He consulted a surgeon, who made a diagnosis of spina ventosa and did an operation, the result of which was severe deformities. Two years later red spots appeared on the patient's body, and the physician he consulted then made a diagnosis of syphilis and instituted treatment. When this did not improve the condition, the patient came to the outpatient department of the faculty clinic. Hansen bacilli in lesions and nasal secretion were profuse, and cicatricial atrophies exhibited a high degree of anesthesia and thermic anesthesia. As the patient insisted on ambulant treatment, he purchased 30 gm. of streptomycin and was given a daily dose of 0.5 gm. Even with this small dose, leprosy manifestations completely disappeared after two months, although the nasal secretion still showed Hansen bacilli. The patient could not afford more streptomycin, and, as he refused to enter a hospital, his treatment had to be continued with injections of chaulmoogra oil.

Of 10 adult patients with leprosy, who were given sulfone (disulon®) therapy, 6 had nodular leprosy, 3 had maculoanesthetic leprosy, and 1 had bone ulcers. All patients harbored Hansen bacilli. During the first six-day period the patients were given a daily dose of 75 mg. of disulon,* during the second six-day period 100 mg., and during the third, 125 mg. In several patients, vertigo, cyanosis, nausea, anorexia, and hemoglobinuria developed. In several patients the size of the lepromas increased, in several they took on a darker hue, in others they softened, and in others inflammation and infiltration developed around the nodules. There was a considerable increase in Hansen bacilli in the nasal secretion. The patients with maculoanesthesia did not respond. No drugs were administered during the fourth week, but during the fifth week each patient was given a daily dose of 175 mg. of disulon.* At the end of this period, lepromas on face and hands ulcerated, and eruptions appeared on the gums and in the mouth of two patients. In the other eight patients there was little change in the general condition or in the hemogram. During the seventh week the patients were given a daily dose of 200 mg. of disulon.* It was well tolerated by all patients, and at the end of the week Hansen bacilli in nasal secretions had greatly decreased, and in a few patients there were no bacilli at all. Administration of a small dose of iodine resulted in symptoms of intolerance, conjunctivitis, headache, and vertigo, demonstrating the incompatibility of iodine with disulon.* During the 9th, 10th, and 11th weeks, no drugs were administered. In the 12th week the patients were given a daily dose of 200 mg. of disulon* for three periods of six days. At the end of five months cicatrization of ulcers and absorption had occurred, Hansen bacilli in the nasal secretion were absent, and few were found in the lepromas. The patients with maculoanesthesia had not improved markedly and are still under treatment. Professor Gürün will report later on his results with glucosulfone sodium (promin®), diasone® (disodium formaldehyde sulfoxylate diaminodiphenylsulfone), acetosulfone (promacetin®) and other sulfone preparations.

**Medical Students at Ankara and Istanbul Universities.**—Ankara and Istanbul universities opened for the year, Oct. 1, 1951. In an opening address, Prof. Ekrem Rushdi Izmen, rector of Ankara University, said that, whereas formerly the schools of law and literature had the highest enrolment of students, enrolment in the school of medicine has for several years exceeded theirs. However, lack of sufficient clinics, laboratories, and other equipment made it difficult to provide the students with practical experience. Because of the inflation, the 300-bed hospital, erected by the Turkish Red Crescent Society for the establishment of a School of Nursing, has for years remained in a semifinished state. This year, with £7,330,000 from the Marshall Plan, the hospital will be completed and equipped, and its clinics and laboratories will be opened to medical students.

At Ankara University there are 7,938 students, of whom 1,443 are women and 6,495 are men. The university has 153 professors, of whom 15 are foreigners, 87 associate and assistant professors, and 239 assistants. Since its establishment six years ago, Ankara University has conferred 66 doctor's degrees on graduates of the schools of law, letters, political science, and agriculture, and 571 on graduates of the medical school; it has appointed 53 associate professors and conferred the degree of professor on 26 associate professors. Of the 1,050 new students admitted for the 1951-1952 period, 150 are medical students.

Prof. Kazim Ismail Gürkan, rector of Istanbul University, stated in his opening address that the university has 12,188 students, of whom 2,752 were women, 9,436 were men. There are 2,809 medical students. Since far more students seek admission to the university than can adequately be taken care of, this year for the first time students were admitted on the basis of competitive examination; medical students were given medical aptitude tests.

On the staff are 136 *ordinarius* professors, 102 associate professors, 253 assistants, 34 lecturers, 5 interpreters at the disposal of the foreign professors, 6 monitors, 9 foreign lecturers, 21 foreign technicians, and 3 instructors, a total of 569 staff members. Of these, the medical school has 48 professors, 33 associate professors, and 134 assistants. The new allocations will be devoted to the establishment of a new psychology clinic and an orthopedic clinic. A new library will also be established. The new buildings for the School of Science and for the School of Literature are nearing completion; a pedagogy institute will be established. The chemistry institute will be transferred to the new building, and grounds will be set aside for a campus.

V 14
1952

# CORRESPONDENCE

## DELIVERY OF BABIES AFTER FIFTY-FIVE

*To the Editor:*—I am appealing for help to learn the identity of a few of the women over the age of 55 who have given birth to babies. According to the National Office of Vital Statistics, such births number from 50 to 60 per year in this country. I have contacted this office, but they have no record by individual identity of these patients. I have contacted the Massachusetts Department of Vital Statistics and have found that birth certificates are filed chronologically but are not indexed by age. I am planning to write to registrars of vital statistics in other states along the Atlantic seaboard.

Would it be feasible to insert in THE JOURNAL an appeal to medical practitioners of the country at large as to whether any of them knows of bona fide cases of women over the age of 55 giving birth to children? It would be helpful, moreover, if birth certificates of these women were available as proof that the patients actually were of this stated age.

I would be extremely grateful if you can give me any help in this matter.

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## LOW BODY TEMPERATURE

*To the Editor:*—Among the admirable data compiled by Laufman (*J. A. M. A.* [Nov. 24] 1951) in the emergency admission of a patient with unprecedentedly low body temperature, the metabolic rate of –7.8 appears impossible. Theory alone will rule out an energy exchange within normal limits at a hypothermia of 68 F (20 C), but supporting facts are as follows: 1. The demonstrated low metabolism of hibernation and of clinical and experimental hypothermia after the excitement stage. 2. The preservation of refrigerated bloodless extremities for 54 or 96 hours, and still longer survival of various grafts. 3. The record of 3 to 5 shallow respirations per minute, comparable to the observations in animals, could not have provided enough oxygen for life with normal metabolism. 4. Even if enough oxygen were inspired, the 12 to 20 feeble heartbeats per minute could not distribute it adequately. 5. Even if the oxygen were distributed, there is the additional difficulty of oxyhemoglobin dissociation at low temperature. 6. Minimal metabolism is the only explanation of the long survival of infant mammals with no respiration or heartbeat and of their long survival in nitrogen (Adolph, *Am. J. Physiol.* **155**:366-377 [Dec. 1] 1948). 7. The very slow return of warmth in Laufman's patient corresponds to observations in patients with known reduction of metabolism, and with normal metabolism the return would be more rapid. 8. Such extreme prolonged reduction of blood pressure and circulation, from trauma, hemorrhage, or any cause whatsoever must entail fatal shock if the metabolism is near normal. For these reasons the suppositions of elevation by alcohol ingestion or muscle tremors seem inadmissible. The specific dynamic action of foods at low temperatures is one of the interesting problems awaiting an investigator.

Besides the undesirability of allowing an impression that normal metabolism can prevail in mammals with low temperatures to enter the literature, two important considerations are involved. 1. Assuming no errors of observation or calculation, inquiry concerning an artefact may be rewarding. The metabolism was tested when the respirations had risen to 16 per minute. The stimulation of breathing by the high blood acidity, perhaps to some extent also by the medication, might be conducive to an *auspumpung* of carbon dioxide retained from the preceding period of relative anoxia. It is pure speculation whether surplus oxygen could be used to compensate for anaerobic cell metabolism in that preceding period, perhaps by direct combination with incompletely oxidized products. A respiratory quotient would be of interest, especially in view of the great hyperglycemia, but this also might be an artefact. The obscure physiology of hypothermia invites studies in species, such as the rat, which can tolerate these minimal temperatures. 2. A universal tradition erroneously lists cold among the causes of shock. Exhaustion due to voluntary efforts or shivering in the attempt to prevent chilling may predispose to shock, and subsequent frostbite lesions may directly produce shock, but the action of cold itself is to prevent or reduce shock by minimizing damage to tissues and vessels. This case of protection by systemic cold conforms to the many experiences of prevention of shock by local chilling of anoxic tissues. There should be wider application of this principle for traumatic shock and especially for burns.

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## PROFESSIONAL JEALOUSY

*To the Editor:*—The American Medical Association has just completed two years of a strenuous campaign to foster and to promote better public relations with John Q. Public via the press and radio. It has made a gallant attempt to reawaken physicians so that American medicine can survive as a free and independent profession. It has attempted to remove a mysterious wall that sometimes has existed between physicians and the people in their community. It has tried to encourage physicians to participate more frequently in civic affairs and has so successfully stimulated such activities in many quarters that the communities now recognize physicians as human beings instead of as diagnostic machines. However, these energies expended by the American Medical Association to stimulate physicians to participate in community affairs may be doomed to at least partial failure unless the profession removes a problem from within its midst. This problem can be vicious and certainly is an unnecessary evil. Gossips speak of it as "professional jealousy." All physicians must admit that such an evil sometimes arises.

These two vilifying words have caused too many physicians to be reticent about participating in public relations programs such as those stressed by the American Medical Association. The fear of unjust and unwarranted criticism has prevented some influential physicians from supporting a program that requires their names in print. Regardless of the worthiness of the project, they fear some will misconstrue it as advertising.

Physicians as a rule are men of high academic and scholastic background, are of good moral character, and possess integrity. As one labor leader recently expressed himself: "Doctors are the type of rugged individuals who have built this country into what it is today. They must continue to use their freedom of speech to keep building America and to retain their own independence and self respect." Thus, where professional jealousy exists it must be eliminated, so that all physicians may be free to work in harmony with others to support the program of keeping American Medicine at the high level it has attained. It must be eliminated so that physicians need not fear unjust criticism.

The question arises "What can the medical profession do to eliminate professional jealousy?" It is our opinion that it could be eradicated to a great degree if the following suggestions were implemented.

A poll among physicians would probably reveal that untold numbers have never read the Code of Ethics of either the American Medical Association or the World Medical Association. The code should be read at a county level to all members during a regular monthly meeting. All physicians should receive a copy of it and of the oath of Hippocrates.

Physicians must realize and must let others realize that they are human beings and not diagnostic machines. They should have more round table discussions to receive constructive criticisms of themselves. Humility is an asset for all persons. Doctors should recognize the harm that can follow a lost temper and careless criticism of others, especially when the latter occurs in public.

Wholehearted support should be offered to civic projects by which the entire community benefits. All doctors, whether general practitioners or specialists, should try to recapture the respect that was once given to the "family doctor." No one should ever forget that "people who live in glass houses should not throw stones."

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## PERFORATION FOLLOWING BARIUM ENEMA

*To the Editor:*—The danger of perforation of the colon proximal to a colostomy by self-administered irrigation through the colostomy stoma is well illustrated by the case reported by Drs. Earle I. Greene and J. Major Greene in THE JOURNAL (**148:49** [Jan. 5] 1952). That this accident is a rare occurrence is borne out by the fact that the authors were able to find only one other report of a similar complication in the medical literature of the preceding 18 years. For this reason, and to illustrate still another and related means of perforating the bowel proximal to a colostomy stoma, I should like to record the occurrence of such an accident after barium enema study.

The patient was a white man, 50 years old, who had undergone abdominoperineal resection for rectal cancer on Aug. 24, 1945. Opaque material was introduced through the colostomy stoma on Sept. 10, 1946, to outline the remnant colon because of symptoms referable to the large bowel. To prevent regurgitation of the barium suspension, a balloon-tipped catheter was employed. Almost immediately after the balloon was distended and the flow of barium started, the patient complained of pain in the region just above the stoma. Roentgenograms obtained after introduction of barium, and again after an unsuccessful attempt to evacuate the clysma, disclosed a sharp, short constriction of the splenic flexure but did not reveal a sinus tract or other evidence to indicate perforation of the bowel. Abdominal pain persisted and became still more pronounced after a saline enema self-administered by the patient in the hope of obtaining relief by emptying the colon of the previously introduced barium. The abdomen gradually distended, and tenderness and muscle guarding became apparent. The temperature rose to 100.3 F (oral) and the pulse rate to 108 beats per minute. Abdominal laparotomy was performed about 14 hours after the start of the barium enema study. A large perforation was found in the colon about 4 cm. proximal to the colostomy. Pelvic peritonitis was present, and plastic exudate covered the serosa of the small bowel. The perforated portion of colon was resected, and a section of bowel proximal to this was exteriorized as a new stoma. Recovery was slow, but the immediate postoperative course was otherwise uneventful.

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## PERSISTENT COUGH DUE TO HAIR IMPINGING ON EARDRUM

*To the Editor:*—Every practitioner who deals with children is familiar with what has been called an "ear cough." This is produced by mechanical irritation of the membrana tympani during manipulation incident to clearing out the external auditory canal. Dried cerumen or foreign bodies introduced in the canal by children may be the cause of such reflex coughing, which is usually relieved by removal of the irritating substance whatever it may be. This communication is for the purpose of calling attention to a cause of such coughing that may easily escape notice if it is not suspected.

This cough reflex is mediated through the auricular branch of the vagus, which is distributed to the outer surface of the eardrum and through one or both of the laryngeal nerves. It is probably not produced by simple contact of a hair against the eardrum, unless the end of the hair definitely impinges on and irritates the drum. It is not uncommon to find one or more hairs lying against the drum without any resultant symptoms. When, however, the end of a hair is definitely pressed against the drum a most persistent and irritating cough can result.

This matter was first brought to my attention by Dr. Harmon B. P. Jordan, who was at that time assistant superintendent of the Charles V. Chapin Hospital. He described a child who was brought to the outpatient department because of a long-continued cough. Routine examinations did not reveal a cause until Dr. Jordan discovered in one auditory canal a hair imbedded in a mass of cerumen with its end against the drum. Removal of the hair was followed by complete relief of the cough. A year or two later a 13-year-old girl was brought to my office because of a severe dry hacking cough of two or three days' duration. Examination showed a hair impinging with one end on the eardrum. One month previously the hair had been noted to be curled against the drum. No symptoms were present at that time. Removal of the hair with ear forceps was followed by disappearance of the cough.

A few years later I mentioned this experience to Dr. Conrad Wesselhoeft of Boston, and shortly afterward he wrote me of a similar case in which several consultants had failed to determine the cause of a distressing cough in a child. He had discovered and removed a hair that was pressing against one of the eardrums. Removal of the hair cured the cough.

A fourth patient, seen in 1935, was a 27-year-old housewife, the wife of a physician, who had had a spasmodic cough for a month. It began, she believed, as a result of a mild upper respiratory infection. It had been completely resistant to various types of cough mixtures, including one containing 16 mg. of codeine to the teaspoonful. She had also been given phenobarbital. The cough had been nonproductive up to two days before she was seen. In talking the problem over with the patient's husband, mention was casually made of the cases of reflex cough from eardrum irritation by a hair, and, as the ear speculum was being withdrawn from what appeared to be a normal auditory canal, a hair, which had previously escaped attention, was seen lying on the floor of the canal with its end against the lower margin of the drum. This was carefully syringed out. The cough promptly disappeared.

While cough produced by this mechanism may well be familiar to many practitioners, no reference has been found to it in the literature consulted and the matter appears to the writer of sufficient interest to justify this report.

ALEX M. BURGESS, M.D.
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Providence, R. I.

## ARTERIOVENOUS PULMONARY FISTULA

*To the Editor:*—Your editorial in THE JOURNAL of Jan. 12, 1952, on arteriovenous pulmonary fistula states, "A constant radiological finding is that of one or more nonprogressive pulmonary lesions that are seen as round masses, and which on fluoroscopic examination may be seen to pulsate."

We are reporting two cases in which pulmonary arteriovenous aneurysm were looked for ante mortem with x-ray and fluoroscopy and were not seen. The lesions may be so situated that these methods fail to reveal the lesion and they are brought out only by angiography.

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BENJAMIN GASUL, M.D.
Cook County Hospital, Chicago.

## ELI LILLY MEDICAL RESEARCH FELLOWSHIP (SOUTH AFRICA)

*To the Editor:*—I should like, through the courtesy of your columns, to draw the attention of medical practitioners registered in South Africa who may at present be in the United States to the fact that applications may be submitted for the 1952 award of the Eli Lilly Medical Research Fellowship. Further details can be obtained from the address below. The closing date for applications is May 8, 1952.

L. EALES, Honorary Secretary,
Selection Committee Eli Lilly Medical
Research Fellowship
Cape Town Post-Graduate Medical Association
P. O. Box 2980, Cape Town, South Africa.

V 14
1952

# BUREAU OF LEGAL MEDICINE AND LEGISLATION

## MEDICOLEGAL ABSTRACTS

**Group Hospitalization.—Osteopathic Hospital as "Nonmember Hospital" Under Membership Contract.**—The plaintiff filed suit against the defendant, Group Hospital Service, Incorporated, to recover the cost of hospital services rendered to his wife. From a judgment in his favor, the defendant appealed to the court of civil appeals of Texas.

The plaintiff owned a policy issued by Group Hospital Service, Incorporated, which entitled him and his wife to certain benefits agreed upon therein. His wife, having suffered a stroke, was carried to an Osteopathic Hospital and was there treated by a Dr. Vick, who had studied at Kirksville College of Osteopathy and who held a license to practice medicine in Texas, but who was not the holder of an M.D. degree. After leaving the hospital, the expense of hospitalization and treatment received therein was submitted in a claim to the defendant; liability was denied by reason of a provision in the membership agreement which defined a nonmember hospital as one registered with the American Medical Association. As a condition to registration with the American Medical Association, a hospital is required to meet a number of rules designed to raise the standard of service to the patients in the hospital, one of such rules being: "Osteopaths, Chiropractors, and other non-medical practitioners may not be permitted to use the facilities of hospitals desiring to conform to these standards." It was conceded that the Osteopathic Hospital was not registered with the American Medical Association and that Dr. Vick was not permitted to practice in hospitals registered with the American Medical Association.

The plaintiff contended that the provision in the membership agreement requiring nonmember hospitals, as a minimum requirement, to be registered with the American Medical Association was in violation of Section 5, Article 4590a of the state statutes and that this clause in the contract resulted in the defendant's controlling the relation existing between the member and his or her physician and restricting the right of the plaintiff to obtain the services of any licensed doctor of medicine. Article 4590a, said the court, does not attempt to compel the defendant to enter into a membership contract with any hospital, nor does it attempt to compel any hospital to enter into a contract with the defendant. Thus, the defendant had the right to contract with any hospital, or group of hospitals, with whom it chose to deal as member hospitals. Nowhere in the application of the plaintiff or in the contract of membership issued to him, is found any expression that might be interpreted as evidence that the defendant was attempting to practice medicine in any manner or to furnish to the plaintiff a physician or any medical service. It is also significant and accepted that there is neither in the plaintiff's application nor in his contract of membership any express contract provision prohibiting osteopaths or any other type of practitioner from treating or serving any member hospitalized in either a member hospital or a non-member hospital.

Section 5 provides, in part, ". . . but said corporation shall *confine its activities* to rendering hospital service *only* through *such type* of hospitals with whom it has contracts." If we are to give any effect to this clear provision of the statute, said the court, it is evident that a limitation is being placed on the activity of the corporation. What is the limitation so placed? The answer is evident that the corporation shall render hospital service only through such type of hospitals with whom it has contracts. And the final question would be, "What type of hospitals does Group Hospital Service, Incorporated, have contracts with?" In the case at bar it is uncontroverted that Group Hospital Service, Incorporated, has contracts only with hospitals registered with the American Medical Association. Since Group Hospital Service, Incorporated, has contracts only with hospitals registered with the American Medical Association and a right to so contract is permissible under the statutes, it would clearly appear that the corporation was not contracting in violation of the statute but was, in fact, contracting strictly within the statute by "confining its activities to rendering hospital service *only* through such type of hospitals with whom it has contracts."

Since Group Hospital Service, Incorporated, as a nonprofit organization entered into a written contract with the plaintiff to furnish hospitalization benefits to the plaintiff and his wife through nonmember hospitals who were registered with the American Medical Association and has confined its activities to rendering hospital service only through such type of hospitals, the fact that such type of hospitals have valid rules which might exclude certain physicians will not place the membership agreement executed by the plaintiff and the defendant in violation of any section of the statute. Accordingly the judgment of the trial court in favor of the plaintiff was reversed and judgment was entered in favor of the defendant Group Hospital Service, Incorporated.—*Group Hospital Service, Incorporated v. Armstrong, 240 S. W. (2d) 418 (Texas 1951).*

# COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

## ADDITIONAL HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in Chicago, Feb. 9, 1952:

DeKalb County General Hospital, Fort Payne, Ala.
Phoenix Medical Center (General), Phoenix, Ariz.
White Mountain Hospital, Springerville, Ariz.
Memorial Hospital, Arkadelphia, Ark.
Gray Memorial Hospital, Little Rock, Ark.
Piggott Hospital, Piggott, Ark.
Alta Local Hospital, Dinuba, Calif.
Sister Kenny Polio Hospital, El Monte, Calif.
Holy Cross Hospital, Los Angeles, Calif.
John C. Fremont Hospital, Mariposa, Calif.
The Westerly, Venice, Calif.
Westwood Hospital, Westwood, Calif.
Motion Picture Country Hospital, Woodland Hills, Calif.
Baptist Hospital, Pensacola, Fla.
South Sarasota County Memorial Hospital, Venice, Fla.
Terrell County Hospital, Dawson, Ga.
Eureka Hospital, Eureka, Ill.
Mendota Community Hospital, Mendota, Ill.
Martin's Convalescent Home, Peoria, Ill.
Community Hospital, Bremen, Ind.
Buffalo Center Hospital and Clinic, Buffalo Center, Iowa
Rock Rapids Hospital, Rock Rapids, Iowa
City Hospital, Sheldon, Iowa.
Achenbach Memorial Hospital, Hardtner, Kan.
Pratt County Hospital, Pratt, Kan.
District Four State Tuberculosis Hospital, Ashland, Ky.
Mercer General Hospital, Harrodsburg, Ky.
Notre Dame Hospital, Lynch, Ky.
U. S. Naval Hospital, Bainbridge, Md.
Hayes-Green-Beach County Memorial Hospital, Charlotte, Mich.
Community Memorial Hospital, Clarkfield, Minn.
Murray County Memorial Hospital, Slayton, Minn.
Worthington Municipal Hospital, Worthington, Minn.
Covington County Hospital, Collins, Miss.
Ivy Memorial Hospital, West Point, Miss.
Pemiscot County Memorial Hospital, Hayti, Mo.
Teton Memorial Hospital, Choteau, Mont.
Garfield County Hospital, Jordan, Mont.
Malta Hospital, Malta, Mont.
Otto Maternity Home, Bloomfield, Neb.
Perkins County Community Hospital, Grant, Neb.
Our Lady of Lourdes Hospital, Camden, N. J.
Neponsit Beach Hospital, Neponsit, N. Y.
Institute of Physical Medicine and Rehabilitation, New York, N. Y.
Mercy Memorial Hospital, Urbana, Ohio
Clinton Memorial Hospital, Wilmington, Ohio
Federal Reformatory Hospital, El Reno, Okla.
Okfuskee County Hospital, Okemah, Okla.
Curry Hospital and Clinic, Sapulpa, Okla.
Lakeview Hospital, Lakeview, Ore.
F. W. Black Community Hospital, Lewistown, Pa.
Self Memorial Hospital, Greenwood, S. C.
Giles County Hospital, Pulaski, Tenn.
Polk County Hospital, Corrigan, Texas
Waller County Hospital, Hempstead, Texas
Polk County Hospital, Livingston, Texas
Muenster Clinic and Hospital, Muenster, Texas
Cochran County Hospital, Morton, Texas
Throckmorton County Memorial Hospital, Throckmorton, Texas
Medical Center Hospital, Tyler, Texas
Okanogan County Hospital District No. 1, Brewster, Wash.
Olympic Memorial Hospital, Port Angeles, Wash.
Algoma Memorial Hospital, Algoma, Wis.
Capitol Hospital, Milwaukee, Wis.
Tigerton Hospital, Tigerton, Wis.
Doctors Hospital, Santurce, P. R.

# MEDICAL LITERATURE ABSTRACTS

## UNITED STATES

### A.M.A. Arch. Internal Medicine, Chicago

88:701-848 (Dec.) 1951


*"Idiopathic" Thrombocytopenia: Review of 89 Cases with Particular Reference to Differentiation and Treatment of Acute (Self-Limited) and Chronic Types. E. O. Hirsch and W. Dameshek.—p. 701.

Moniliasis in Patients Treated with Aureomycin: Clinical and Laboratory Evidence that Aureomycin Stimulates Growth of Candida Albicans. R. B. Pappenfort Jr. and E. S. Schnall.—p. 729.

*Cat-Scratch Disease: Nonbacterial Regional Lymphadenitis. W. B. Daniels and F. G. MacMurray.—p. 736.

Rationale of Therapeutic Use of Streptokinase-Streptodornase in Amebic Abscess of Liver. S. Sherry, W. R. McCarty and W. S. Tillett.—p. 752.

Manifestations of Ascorbic Acid Deficiency After Prolonged Corticotropin Administration. H. L. Holley and J. S. McLester.—p. 760.

Liver and Estrogen Metabolism: Report of Cases. R. S. Long and E. E. Simmons.—p. 762.

Diagnosis of Dissecting Aneurysm of Aorta. C. A. Domzalski Jr.—p. 770.

Chronic Scleroderma with Acute Exacerbation During Corticotropin Therapy: Report of Case with Autopsy Observations. J. H. Lunseth, L. A. Baker and A. Shifrin.—p. 783.

Brucella Hepatitis Leading to Cirrhosis of Liver. N. B. McCullough and C. W. Eisele.—p. 793.

Hypocellular Marrow in Acute Leukemia: Report of Two Cases. M. R. Beyers, L. M. Meyer, M. Lowenthal and others.—p. 803.

Clinical Variations of Diabetic Syndrome in Tropical Country (Ceylon). V. P. DeZoysa.—p. 812.

Marital Hodgkin's Disease: Review of Familial Incidence and of Etiological Factors. S. A. Mazar and B. Straus.—p. 819.

Asbestosis Associated with Bronchogenic Carcinoma. R. Stoll, R. Bass and A. A. Angrist.—p. 831.

Coarctation of Abdominal Aorta Simulating Pheochromocytoma. J. W. Goldzieher, H. E. McMahon and M. A. Goldzieher.—p. 835.

*Combined Antibiotic Therapy: Report of Case of Subacute Bacterial Endocarditis Reinfected with Diphtheroid and Successfully Treated with Penicillin and Bacitracin. R. Wallach and N. Pomerantz.—p. 840.


**"Idiopathic" Thrombocytopenia.**—On the basis of thrombocyte counts obtained during remissions in 89 cases of "idiopathic thrombocytopenic purpura," two clinical types of "idiopathic" thrombocytopenia could be distinguished: acute, self-limited thrombocytopenia in 26 cases, and chronic thrombocytopenia in 55 cases. In the former, spontaneous recovery usually occurs within four months of the onset. In the latter, while clinical remissions are also the rule, thrombocytopenia persists and exacerbations are common. The two types differ in their modes of onset, the presence or absence of etiological factors, the occurrence of eosinophilia and lymphocytosis, incidence of splenomegaly, and tendency to be familial. On the basis of these features it is usually possible to distinguish the two entities; of the authors' 89 cases, only 8 were unclassified. The diagnosis of thrombocytopenia, particularly of the chronic idiopathic type, must be considered whenever excessive bleeding is present, even in the absence of petechiae or purpura. In evaluating therapy it is necessary to differentiate clearly between acute, self-limited thrombocytopenia and the chronic disease. In acute thrombocytopenia the evaluation of any treatment, including splenectomy, is frequently impossible because of the self-limited nature of the disease. In chronic idiopathic thrombocytopenia, because of the frequency of spontaneous clinical remissions that often are of many years' duration, and because of the spontaneous fluctuations in thrombocyte count, treatment can be considered successful only if the thrombocyte count is normal over a significant time. Splenectomy may be considered curative only if the thrombocyte count remains normal for at least four to six months after operation. Although the decision for or against splenectomy is still difficult in an individual case during an attack of acute purpura, the authors' data suggest that it may be best to treat such episodes by supportive measures and to perform splenectomy only after frank purpura has subsided. On the other hand, local bleeding from mucous membranes often responds dramatically to splenectomy and, if unaccompanied by purpura, should not be considered a contraindication to the operation. Splenectomy resulted in the cure of about two-thirds of the patients with chronic idiopathic thrombocytopenia. Because of the low mortality of this operation when patients are free of purpura and the possibility of future hemorrhagic crises, splenectomy should be done in all patients with chronic idiopathic thrombocytopenia as soon as the diagnosis is established and the patient is free of purpura. Splenectomy is probably of no value in thrombocytopathic thrombocytopenia. There were too few cases of acute thrombocytopenia to permit definite conclusions concerning the value of splenectomy in modifying the course of acute thrombocytopenia.

**Cat-Scratch Disease.**—More than 100 cases of sterile suppurative regional adenitis associated with fever and constitutional symptoms in persons who had been scratched by or had had contact with cats have been reported in the literature. The authors report 12 additional cases in persons between the ages of 10 and 73. All had had more or less intimate contact with cats; seven had been scratched and one bitten. Transmission by insect bite was probable in one instance. Inhalation of infectious material was suggested in one patient who had sore throat associated with massive cervical lymphadenopathy. This followed the sniffing of pillows soiled by cat urine to determine whether they had odor. Five of the patients had primary lesions at the site of inoculation in the form of a scratch scar covered by a scabbed erythematous papule. These lesions appeared within two to four days of the time of inoculation. The lymphadenopathy involved the cervical nodes in 4 patients, the femoral or inguinal nodes in 3, and the epitrochlear and axillary nodes in 5. In the patients with enlargement of cervical nodes the supraclavicular nodes were also involved in three, the occipital nodes in one, and a submental node in one. None of the patients was seriously ill. Mild to moderate fever was noted in about half of them. Systemic symptoms, consisting of chills, headache, and generalized aching, occurred in three instances. Leukocyte counts were normal in the six patients in whom they were made. An antigen prepared from the aspirated pus by Hanger and Rose, one of whom himself had cat-scratch disease, was used for intradermal tests on the authors' patients; the test was found to be specific. The evidence indicates that the disease is ubiquitous and is frequently confused with more serious illness. The disease is indolent but self-limited, lasting from weeks to months. The lymph nodes have a characteristic microscopic pattern that is suggestive but not diagnostic. The causative agent is unknown.

**Combined Antibiotic Therapy.**—A woman aged 28 with subacute bacterial endocarditis due to Streptococcus viridans who subsequently became reinfected with a diphtheroid was treated intermittently with penicillin, then aureomycin, and later streptomycin. Each of these agents proved to be ineffective. The blood stream was finally sterilized permanently by the combined use of penicillin (in doses of 6,000,000 to 12,000,000 units daily) and bacitracin (in doses of 30,000 to 80,000 units daily) for 11 days. In vitro sensitivity tests, using combinations of penicillin and streptomycin and of penicillin and bacitracin, showed synergism against the organisms tested. An objectionable feature of the parenteral use of bacitracin is the high incidence of nephrotoxicity. It is suggested that parenteral treatment with bacitracin might be of value when bacitracin is used in smaller doses in combination with penicillin for its synergistic effect.

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Titles marked with an asterisk (*) are abstracted.

V 14
1952

## American Journal of Medical Sciences, Philadelphia

222:485-612 (Nov.) 1951

Viral Theory of Cancer: Evaluation of Some Recent Work. W. O. Russell and E. S. Wynne.—p. 485.
Diagnosis of Tertiary Syphilis of Liver: 25 Years After McCrae. E. Shapiro and H. Weiner.—p. 494.
Mortality of Acute Myocardial Infarction in Private Practice. S. Baer, W. I. Heine and S. O. Krasnoff.—p. 500.
Effect of Acidosis and Alkalosis on Plasma Potassium Concentration and Electrocardiogram of Normal and Potassium Depleted Dogs. W. B. Abrams, D. W. Lewis and S. Bellet.—p. 506.
*Reappearance of Abnormal Laboratory Findings in Rheumatic Patients Following Withdrawal of ACTH or Cortisone (with Special Reference to C-Reactive Protein). S. R. Ziegra and A. G. Kuttner.—p. 516.
*Anti-Rheumatic Effects of 3-Hydroxy-2-Phenylcinchoninic Acid (HPC) in Gout, Rheumatic Fever, and Rheumatoid Arthritis. J. Simson and J. J. Bunim.—p. 523.
Hepatic Function Tests in Weil's Disease. A. B. Shinn, H. P. Roth and R. D. Moore.—p. 530.
Osmotic Erythrocyte Fragility in Patients with Jaundice. E. R. Movitt, B. Gerstl and E. A. McKinlay.—p. 535.
Antidiuretic Hormone Studies in Patients Presenting Edema. M. Dochios and L. S. Dreifus.—p. 538.
Afferent Loop Studies After Subtotal Gastric Resection. S. H. Lorber and H. Shay.—p. 544.
Ebstein's Disease: Report of First Case Diagnosed During Life. L. A. Soloff, H. M. Stauffer and J. Zatuchni.—p. 554.
Recurrent Thrombophlebitis: Experimental Study of Life Situations and Emotions and Clotting Time and Relative Viscosity of Blood. R. A. Schneider.—p. 562.
Chronic (Non-Specific) Ulcerative Colitis: Review of Medical Therapy. T. E. Machella.—p. 579.
Peptic Ulcer in Children. R. H. Morgan.—p. 590.

**Recurrence of Abnormal Reactions Following Withdrawal of Corticotropin or Cortisone.**—Investigators had observed that the serums of acutely ill patients gave a precipitin reaction with a non-type-specific polysaccharide isolated from pneumococcus cells. This reaction has been found to be due to a protein not normally present in blood, the C-reactive protein, which also provides a sensitive test for rheumatic activity. Ziegra and Kuttner therefore decided to study the C-reactive protein in children with rheumatic carditis treated with corticotropin (ACTH) or cortisone. They found that the C-reactive protein was present in 16 children with signs of rheumatic carditis before treatment was instituted, but usually decreased rapidly with hormone therapy. The abrupt withdrawal of corticotropin or cortisone early in the course of therapy was usually followed by a prompt recurrence of rheumatic manifestations, but even when these hormones were withdrawn gradually after a prolonged course of therapy, it was found in many instances that the C-reactive protein level as well as the erythrocyte sedimentation rate and gamma globulin again became abnormal. Some patients in whom clinical evidence of carditis failed to subside during therapy received more than one course of treatment. Rebound phenomena were observed after each course. Despite apparently adequate treatment, only one patient in this series showed no clinical or laboratory evidence of rheumatic activity when therapy was discontinued. One patient had a clinical relapse and 14 showed various abnormal laboratory findings shortly after cessation of treatment. The "laboratory" rebound phenomena did not appear to be due to the fact that rheumatic fever was polycyclic, since they subsided promptly without further treatment, usually within two or three weeks. A possible explanation of rebound phenomena might be that following withdrawal of corticotropin or cortisone, the response of the body is altered, probably because of temporary depression of adrenal function. If the rheumatic process has not subsided completely, this decreased adrenal activity tends to make various laboratory tests more strongly positive than they would be at the same time in the natural course of the disease. The authors suggest that it is not advisable to resume treatment until sufficient time has elapsed to determine whether or not the abnormal laboratory findings will return to normal spontaneously.

**Anti-Rheumatic Effects of 3-Hydroxy-2-Phenylcinchoninic Acid.**—Simson and Bunim used 3-hydroxy-2-phenylcinchoninic acid (HPC) in treatment of 4 patients with gout, 10 with rheumatoid arthritis, and 6 with rheumatic fever. The drug was given in doses varying from 20 to 40 mg. per kilogram of body weight. All but two patients were started on the smaller dose, and, when symptoms persisted, the dose was increased to 30 and in some cases to 40 mg. The total daily dose was given in three equal portions after each meal or at hourly intervals after breakfast. The drug was administered for from 5 to 35 days. The total amount given varied from 5.4 gm. to 81.4 gm. The administration of 3-hydroxy-2-phenylcinchoninic acid was followed by pronounced improvement in the arthritis of gout. In three subjects the response was as satisfactory as that obtained with colchicine but in the fourth colchicine induced a more rapid subsidence of symptoms. In rheumatic fever marked improvement in polyarthritis, fever, and general malaise was observed. The degree and rapidity of response were comparable to those achieved with salicylate therapy. The effects on rheumatic carditis could not be determined, since none of the patients had heart disease. In most of the patients with rheumatoid arthritis, improvement in articular symptoms was comparable to that noted with salicylates but not to that obtained with cortisone or corticotropin. In 3 of 10 patients relief was greater with 3-hydroxy-2-phenylcinchoninic acid than with salicylates; in 2 no benefit was obtained. One or more toxic reactions were noted in 16 of the 20 patients treated. Most of these were mild, but in four patients side-effects necessitated interruption of therapy. The anti-rheumatic effect of this acid appears to be no greater than that of salicylates in acute rheumatic fever or rheumatoid arthritis. Since in gouty arthritis 3-hydroxy-2-phenylcinchoninic acid is about as effective as colchicine, it may be useful in gouty patients who do not tolerate or who are resistant to colchicine.

## Annals of Internal Medicine, Lancaster, Pa.

35:961-1174 (Nov.) 1951

Endocrine Patterns During Aging. T. H. McGavack.—p. 961.
Medical Problems in Radiological Defense. F. R. Philbrook.—p. 975.
Evaluation of Antibiotic Therapy in Human Leptospirosis. H. E. Hall, J. A. Hightower, R. D. Rivera and others.—p. 981.
Psychosomatic Medicine Looks at Medical Specialization. S. Rubin.—p. 999.
Effect of Prolonged Administration of Thyroid. M. W. Johnston, A. H. Squires and R. F. Farquharson.—p. 1008.
*Blood Pressure Variations in the Two Arms. M. J. Rueger.—p. 1023.
Use of Vitamin $B_{12}$ in Management of Neurologic Manifestations of Diabetes Mellitus, with Notes on Administration of Massive Doses. S. M. Sancetta, P. R. Ayres and R. W. Scott.—p. 1028.
*Oculo-Oro-Genital Syndrome: Deficiency Disease. E. C. Jacobs.—p. 1049.
Revitalization of Tissue and Nutrition in Older Individuals. W. B. Kountz.—p. 1055.
*Coccidioidal Meningitis: Report of Four Cases with Necropsy Findings in Three Cases. V. E. Jenkins and J. C. Postlewaite.—p. 1068.
Intermittent and Transient Bundle Branch Block: Clinical and Electrocardiographic Study. A. A. Sandberg, J. Wener, A. M. Master and L. Scherlis.—p. 1085.
Liver Function: Attempt to Correlate Structural Change with Functional Abnormality. J. W. Norcross, J. D. Feldman, R. F. Bradley Jr. and R. M. White.—p. 1110.

**Blood Pressure Variations in the Two Arms.**—Blood pressure readings were made on both arms of 755 ambulatory patients, including some with normal and abnormal cardiovascular systems. A total of 1,388 blood pressure readings were recorded on each arm. The blood pressure was found to be higher in the right arm in 992 readings, as compared to 274 in the left arm, and to be equal in both arms in only 122 readings. The systolic variation in the two arms was 10 or more points in 694 readings. The diastolic variation was less than 10 points. Although clinically it may not be significant whether the blood pressure varies as much as 10 mm. Hg, under many circumstances even this small difference may be of vital importance to the individual. This is particularly true in examinations for life insurance, employment, or military service. It is recommended that at the first examination of any person, the blood pressure be taken in both arms, and, if no significant difference is present, that the same arm be used for follow-up studies.

**Oculo-Oro-Genital Syndrome: A Deficiency Disease.**—The polyhypovitaminosis accompanying protracted dietary restriction during more than three years of internment in Japanese prisoner of war camps caused much confusion to the medical officers who attempted to diagnose specific deficiency diseases. Of the various combinations of signs and symptoms, one clearly differentiated syndrome has been called the oculo-oro-genital syndrome. When the first cases of scrotal dermatitis occurred, trichophytosis was thought of, but when glossitis and angular stomatitis appeared in the same persons, the syndrome was recognized as a deficiency disease, probably closely associated to

pellagra. In the following few weeks more than 75% of the 8,000 American prisoners developed some degree of scrotal dermatitis, and 100 moderately advanced cases were selected for study. Within a few days of the appearance of scrotal dermatitis, glossitis developed in all of the selected group. Its first manifestations were erythema and soreness of the tip of the tongue. The tongue became very sensitive to hot or highly seasoned food. Angular stomatitis developed in 80 of the selected patients, and 17 had striated mucous patches on the inner surfaces of the cheeks. Erythema of the pharynx and soft palate was seen in 59 cases. Crops of small sensitive ulcers appeared on the buccal membranes in 32 cases. Mild to severe conjunctivitis developed in 93% of the cases, and keratitis was present in some degree in 15 cases. The syndrome was improved by two months of adequate diet. When the patients returned to an inadequate rice diet, the syndrome was far less prevalent, indicating some adaptation of the body to lowered caloric and vitamin intake. The vitamin requirements of the body appeared to be less after a loss of considerable body weight. The syndrome did not develop with a minimal diet of corn and soy beans. The syndrome is thought to be closely associated with pellagra, but is not pellagra per se.

**Coccidioidal Meningitis.**—One of the aims in reporting these four cases of coccidioidal meningitis was to stress the chronicity of this form of meningitis. The first patient had had a cavitary pulmonary lesion, which was followed three years later by coccidioidal meningitis. Serologic studies for coccidioidal infection suggested a disseminated form of the disease. He failed to respond to streptomycin, penicillin, and potassium iodide therapy. He was given "actidione" (an antibiotic derived from Streptomyces griseus) intravenously, following which he showed a remarkable clinical response and was alive three years after he was first found to have meningitis. In the second patient meningitis developed while he was stationed at a camp in California, and three years later the meningitis was still present. Therapy for 15 months, including two courses of "actidione," produced no significant change, and death finally resulted from the obstructive complications of basilar meningitis. At necropsy viable Coccidioides immitis were present. In the third patient the onset of illness due to C. immitis was never accurately determined, although during the two years preceding the appearance of the disseminated form of the disease he had had respiratory tract infections with fever while living in southern California. Involvement of the meninges was demonstrated and while he was under observation further hematogenous dissemination occurred, as illustrated by the appearance of miliary pulmonary infiltration and the necropsy findings. The original infection in the fourth patient was a relatively mild chest cold while he was working in West Texas. It was followed almost immediately by meningitis, which became chronic and did not respond to therapy. The diagnosis was made by finding the etiologic agent, C. immitis, at necropsy. The importance of considering coccidioidomycosis in the diagnosis of chronic meningitis is stressed.

## Connecticut State Medical Journal, Hartford

**15:**957-1036 (Nov.) 1951

Early Diagnosis of Tumors of Genito-Urinary Organs. A. L. Dean.—p. 959.
Trichinosis: Observations on 50 Sporadic Cases. E. Wasserman.—p. 965.
Diaphragmatic Hernia in Pregnancy: Significance and Danger. S. D. Kushlan.—p. 969.
Public Assistance to the Needy Aged, Blind and Dependent Children. N. C. Anderson.—p. 978.
A 39 Year Follow Up of Typhoid Fever Epidemic in Torrington, Connecticut. J. Lieben.—p. 983.
Psychiatric Clinics and Psychiatric Consultation Service in General Hospitals. H. Wexler.—p. 985.

**15:**1037-1110 (Dec.) 1951

SYMPOSIUM ON MEDICINE AND ATOMIC WARFARE

Medical Aspects of Atomic Warfare. C. L. Dunham.—p. 1039.
Civilian Defense Organization for Mass Casualty Problem. H. L. Goodwin.—p. 1045.
Probable Psychogenesis of Certain Common Anogenital Symptoms and Signs. W. Kaufman.—p. 1047.
Tuberous Sclerosis: Two Cases of Subtentorial Calcification. L. Bernstein and G. I. Pitegoff.—p. 1051.
How County Associations Get Bigger. E. R. Connors.—p. 1058.

## Journal of Nutrition, Philadelphia

**45:**305-462 (Nov.) 1951. **Partial Index**

Determination of Vitamin D with Radiophosphorus. R. H. Snyder, H. J. Eisner and H. Steenbock.—p. 305.
Relation of Vitamin $B_{12}$ and Folacin to Utilization of Choline and Its Precursors for Lipotropism and Renal Protection in Rats. D. R. Strength, E. A. Schaefer and W. D. Salmon.—p. 329.
Relation of Vitamin $B_{12}$ Deficiency to Fertility of Female and Birth Weight of Young in Rats Fed Purified Casein Rations. L. P. Dryden, A. M. Hartman and C. A. Cary.—p. 377.
*Effect of Frying Bacon on Nutritive Value of Protein. B. H. McBride, B. T. Guthneck, E. Hoffert and others.—p. 393.
Utilization of Dietary Calcium by Growing Albino Rats Fed Diets Containing Lard or Cocoa Butter. J. R. Beadles, H. H. Mitchel and T. S. Hamilton.—p. 399.
Effect of Level of Intake on Calcium and Phosphorus Metabolism in College Women. J. M. Leichsenring, L. M. Norris, S. A. Lamison and others.—p. 407.
Plasma Vitamin A and Carotene Determinations in Group of Normal Children. B. B. Szymanski and B. B. Longwell.—p. 431.
West Indian and New Orleans Negro Metabolism Tests. D. P. Quiring.—p. 443.

**Frying and Nutritive Value of Bacon.**—To determine whether the nutritive value of protein in bacon is influenced by the frying process, McBride and associates fed lyophilized and ether-extracted bacon as the sole source of protein at a 10% level to weanling rats. No reduction in the utilization of the protein by weanling rats was observed in three tests with crisp-fried (well-done) bacon or in one test with limp-fried (medium-done) bacon as compared to control groups receiving uncooked bacon. A small statistically significant reduction in the nutritive value of the protein was observed in one test with crisp-fried bacon.

## Journal of Urology, Baltimore

**66:**619-734 (Nov.) 1951. **Partial Index**

Tuberculosis of Urinary Tract. D. Van Cappellen.—p. 619.
Renal Trauma: Study of 71 Cases. C. V. Hodges, D. R. Gilbert and W. W. Scott.—p. 627.
Spasm of, and Abscess Formation in Psoas Muscle Caused by Renal Calculus. B. M. Tordoir.—p. 638.
Spontaneous Disintegration of Staghorn Calculus Due to Recumbency. L. E. McCrea and K. E. Van Buskirk.—p. 640.
Acute Renal Insufficiency and Role of Potassium with Treatment by Intestinal Lavage. R. A. Kelley and L. D. Hill III.—p. 645.
Perirenal Cyst Associated with Hypertension: Report of Case. M. R. Gilliam.—p. 661.
Vestigial Epididymal Structures in Unilateral Renal Aplasia. F. E. Cicchino, T. M. Yates and B. S. Chappell.—p. 667.
Intrapelvic Fibroma. S. Immergut and Z. R. Cottler.—p. 673.
Observations on Dynamics of Acute Urinary Retention in Dog. J. D. Lawson and W. B. Tomlinson.—p. 678.
*Electrolyte Disturbance in Ureterocolostomy. M. Korenberg.—p. 686.
Regression of Cancer of Urinary Bladder Following Uretero-Intestinal Anastomosis. C. A. Fort, H. C. Harlin and H. D. Atkinson.—p. 688.
Infected Urachal Cysts. J. Tauber and B. Bloom.—p. 692.
Priapism in Sickle Cell Anemia. J. H. Campbell and S. D. Cummins.—p. 697.
Penile Horn. E. Winterhoff and A. J. Sparks.—p. 704.
Interstitial Cell Tumor of Testis. H. Grabstald, J. S. Haines and A. G. Morrow.—p. 708.
Bilateral Interstitial Cell Tumor of Testicle. F. K. Garvey and T. B. Daniel.—p. 713.
Influence of Hypnosis on Semen. E. J. Farris, M. Garrison Jr. and R. K. Heintz.—p. 720.
Preliminary Report on Use of Tetrazolium Chloride in Genito-Urinary Cancer. R. G. Bunge.—p. 722.

**Electrolyte Disturbance in Ureterocolostomy.**—Recent experience with cases of bilateral ureterocolostomy with resulting changes in electrolyte structure prompted the author to suggest that these changes are attributable primarily to reabsorption of sodium chloride with secondary intra and extracellular electrolyte readjustment. All patients complained of a persistent salty taste and thirst associated with ingestion of excessive amounts of water, leading to polyuria that appeared as diarrhea, followed by fatigue, weakness, anorexia, nausea, and vomiting. The serum sodium concentration was found to be normal or slightly elevated, the blood chloride level elevated, and the serum potassium level below normal. Injection of desoxycorticosterone, administration of sodium chloride solution, and performance of bilateral ureterocolostomy all tend to cause sodium chloride retention in the body. The sodium chloride that appears in the urine of these patients is partially reabsorbed by the bowel. This reabsorption precipitates cellular dehydration with increased potassium loss from the cells and increased urinary potassium

V 14
1952

excretion. The diarrhea tends to accentuate this potassium loss. Treatment of the disturbance must be directed at (*1*) inhibition of reabsorption of excess sodium chloride by encouraging the patient to empty the bowel as frequently as possible; (*2*) maintenance of a low sodium intake; and (*3*) administration of potassium salts to combat the excessive loss incurred by the frequent emptying of the bowel.

## Maine Medical Association Journal, Portland

**42:**327-354 (Nov.) 1951

Management of Endometrial Carcinoma. J. A. James.—p. 327.
Carcinoma of Cervix—Surgical Treatment (Review). R. W. Green. —p. 329.
Intracavitary Application of Radium in Treatment of Cervical Cancer. C. F. Miller.—p. 331.
Preoperative and Postoperative Disorders of Venous System in Obstetrical and Gynecological Patients. T. C. Bramhall.—p. 334.
Chest Injuries. L. Brown.—p. 337.
Surgical Injuries of Genito-Urinary Tract. J. Memmelaar.—p. 340.
Problems in Fluid and Electrolyte Balance in Everyday Hospital Practice. W. K. Barton and R. L. Ohler.—p. 342.

## Military Surgeon, Washington, D. C.

**109:**599-682 (Nov.) 1951

The Airborne Soldier. S. H. Neel Jr.—p. 599.
Medical Service of the Brazilian Army. W. W. Heihle.—p. 606.
Observations on Schistosomiasis in Puerto Rican Troops. E. L. Kehoe and A. Lang.—p. 609.
Crush Syndrome: Report of Case. I. L. Hoffman and E. N. Schwartz. —p. 616.
Treatment of Chronic Amebiasis with Bismuthoxyl p-N-Glycolylarsanilate. R. A. Radke.—p. 620.
Combined Bone and Nerve Injuries. W. J. Tobin.—p. 621.
Physical Medicine and Rehabilitation. H. Kessler.—p. 628.
History of Extension or Correspondence Courses. L. H. Foubare.—p. 636.
History of Tuberculosis. A. Egdahl.—p. 642.

## New Orleans Medical and Surgical Journal

**104:**173-212 (Nov.) 1951

Banthine in Treatment of Duodenal Ulcers. J. E. Holoubek, A. B. Holoubek and R. B. Langford.—p. 173.
Radioactive Iodine$^{131}$ in Differential Diagnosis of Thyroid Disorders. S. B. Nadler, T. Bloch, J. Hidalgo and R. Nieset.—p. 177.
Biologic Effects of Ionizing Radiation. C. E. Dunlap.—p. 182.
Intra-Abdominal Apoplexy. W. F. Becker.—p. 185.
*Exchange Resin Diuresis in Cirrhotic Ascites: Preliminary Report. G. McHardy, D. C. Browne, R. McHardy and S. Ward.—p. 187.
Management of Early Cirrhosis of Liver. W. D. Davis Jr.—p. 192.
Insomnia. T. L. Young.—p. 195.
The Psychopathic Personality in Treatment. A. T. Butterworth.—p. 197.
Present Concept of Cataract Surgery. G. M. Haik and W. Lyda.—p. 200.

**Exchange Resin Diuresis in Cirrhotic Ascites.**—McHardy and associates used resin therapy in 28 patients with edema and ascites associated with hepatic disease. Three patients were not benfited, but resin controlled fluid retention in the remaining 25 patients without appreciable complications. Ammonium resin, by diminishing sodium and potassium absorption from the intestine through fixation and fecal excretion, reduces their respective serum levels and their urinary excretion. Any method of managing ascites is more desirable than paracentesis in control of cirrhosis of the liver, because of the great protein loss caused by paracentesis in a disease characterized by hypoproteinemia. Resin acidosis produced by concomitant ammonium chloride absorption and diminished base absorption probably potentiates mercurial diuresis. The irritation caused by increased urinary ammonium chloride excretion possibly explains the cylindruria common to the use of resins. Hypokalemia may be produced by ammonium cation resin. In the early stages of this study an ammonium potassium resin was not available. At present most patients are receiving this resin, which theoretically prevents hypokalemia. In addition the newer preparations are more palatable, being of finer mesh. Since the use of resin had an unfavorable effect in a case of renal impairment, the authors feel that resins should not be used in the presence of renal insufficiency. They conclude that resins will probably prove valuable adjuncts to the management of sodium retention edema in carefully supervised cases. Laboratory studies essential for the guidance to resin therapy require flame photometric studies. These are expensive and limit the use of resins in general practice.

## North Carolina Medical Journal, Winston-Salem

**12:**525-572 (Nov.) 1951

Iatrogenic Diseases. W. M. Nicholson.—p. 525.
Preliminary Report on Follow-Up of Prefrontal Lobotomies Performed by the Duke Neurosurgical Staff. L. B. Hohman, G. L. Odom, R. B. Suitt and others.—p. 529.
Psychosomatic Medicine. J. D. Bradley.—p. 534.
Pediatrics in General Practice. J. R. Bender.—p. 539.
Clinical Evaluation of 1-(B-Dimethylaminoethoxy)-3-n-Butylisoquinoline Monohydrochloride as an Antipruritic Agent. J. L. Callaway, W. T. Watkins Jr., G. W. Crane Jr. and S. C. Dees.—p. 546.
Clinical Appraisal of New Antipruritic (N-ethyl-o-crotonotoluide). J. M. Hitch.—p. 548.
Eugenic Sterilization in North Carolina. C. J. Gamble.—p. 550.

## Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

**78:**1-362 (Oct.) 1951. **Partial Index**

Distribution of Radioactive Phosphorus in Normal and Diseased Brain Tissue: Experimental and Clinical Observations. W. E. Stern and C. Marshall.—p. 16.
Potentiating Effect of ACTH and of Cortisone on Pressor Response to Intravenous Infusion of L-Nor-Epinephrine. G. S. Kurland and A. S. Freedberg.—p. 28.
Differences in Cellular Pathogenicity of Two Immunologically Related Poliomyelitis Viruses as Revealed in Tissue Culture. N. Ledinko, J. T. Riordan and J. L. Melnick.—p. 83.
Effect of Cortisone, Related Hormones, and Adrenalectomy on Susceptibility of Mice to Virus Infections. C. M. Southam and V. I. Babcock.—p. 105.
Intravenous Treatment of Pernicious Anemia with Citrovorum Factor (Leucovorum). L. M. Meyer, W. C. L. Diefenbach and C. M. Brahin. —p. 119.
Effect of Intravenous Aureomycin on Intestinal Flora of Dog and Man. S. Jacob, F. B. Schweinburg and A. M. Rutenburg.—p. 121.
Placental Transmission of Mumps and Streptococcus MG Antibodies. A. L. Florman, B. Schick and H. E. Scalettar.—p. 126.
Microwave Diathermy Treatment of Frostbite. R. B. Lewis.—p. 163.
Chloromycetin Palmitate: Its Use in Pediatrics. V. DeP. Larkin.—p. 191.
System for Measuring and Designating Antigenic Components of Influenza Viruses with Analyses of Recently Isolated Strains. M. R. Hilleman.—p. 208.
*Effect of Early Small Exchange Transfusion on X-Irradiated Dog. S. N. Swisher and F. W. Furth.—p. 226.
*Megaloblastic Anemia in Pregnancy: Remission Following Combined Therapy with Ascorbic Acid and Vitamin $B_{12}$. R. G. Holly.—p. 238.
Evidence for Sodium Retaining Factor in Toxemia of Pregnancy. J. J. Chart, E. G. Shipley and E. S. Gordon.—p. 244.
Changes in Adrenal and Pituitary Concentrations of $I^{131}$ and $P^{32}$ Following Thyroidectomy. J. B. Boatman, J. H. Sunder, C. Russ and C. Moses. —p. 250.
Simultaneous Occurrence of Two Immunological Types of Group A "Coxsackie" Virus in Case of Herpangina. E. A. Beeman, R. H. Parrott and R. M. Cole.—p. 295.
Central Nervous Depressive Effect of Khellin. G. Chen, C. R. Ensor and D. Russell.—p. 305.
Complement-Fixing Murine Typhus Antibodies in Vitamin Deficiency States: II. Pyridoxine, and Nicotinic Acid Deficiencies. K. Wertman and J. L. Sandria.—p. 332.
Effect of ACTH upon Gastric Secretion. S. J. Gray, J. A. Benson Jr. and R. W. Reifenstein.—p. 338.
Mechanisms of Amethopterin Resistance in Leukemia: I. Effects of Weak Folic Acid Antagonists on Mouse Leukemias. J. H. Burchenal, S. F. Johnston and G. B. Waring.—p. 348.

**Effect of Exchange Transfusion on Irradiated Dogs.**—Immediate removal of 250 cc. of blood and replacement with an equal volume of normal compatible whole blood in 20 lb. (9.1 kg.) dogs given 440 r whole body irradiation (expected LD 80) resulted in a marked delay in onset of radiation syndrome and mortality. There was a suggestive decrease in ultimate mortality as well. The authors feel that these findings suggest the feasibility of attempting immediately after exposure relatively large exchange transfusion of fresh blood in humans exposed to doses of whole body irradiation in the range of high lethality, such as might occur with an accidental laboratory exposure.

**Megaloblastic Anemia in Pregnancy: Response to Ascorbic Acid and Vitamin $B_{12}$.**—After citing reports indicating the lack of response to vitamin $B_{12}$ of megaloblastic anemia of pregnancy, Holly reports the history of five patients with this type of anemia. The relation of this anemia to ascorbic acid deficiency is suggested by the effectiveness of combined ascorbic acid and vitamin $B_{12}$ therapy when vitamin $B_{12}$ alone was ineffective. Two patients did not respond to adequate doses of vitamin $B_{12}$. One of these patients later had a complete remission when ascorbic acid was added to the therapy. The other responded adequately

to folic acid therapy and blood transfusions. Two patients were treated for short periods of time with ascorbic acid alone. A minimal response in reticulocytes was observed in one. Subsequent additions of vitamin $B_{12}$ to the therapy after saturation with ascorbic acid produced a complete hematologic remission. One patient had a spontaneous remission after delivery. In three patients combined therapy with ascorbic acid and vitamin $B_{12}$ produced a complete remission.

## Public Health Reports, Washington, D. C.

**66:**1451-1486 (Nov. 9) 1951. **Partial Index**

Plague on the High Seas. V. B. Link.—p. 1466.
Q Fever in California: IV. Occurrence of Coxiella Burnetii in Placenta of Naturally Infected Sheep. H. H. Welsh, E. H. Lennette, F. R. Abinanti and J. F. Winn.—p. 1473.
Salmonella Mendoza: New Salmonella Type. R. H. Leiguarda, O. A. Peso, A. Z. R. de Pelazzolo and E. M. Ansiaume.—p. 1478.

**66:**1487-1522 (Nov. 16) 1951

Trends and Epidemics of Influenza and Pneumonia, 1918-1951. S. D. Collins and J. Lehmann.—p. 1487.

## South Dakota J. Med. & Pharmacy, Sioux Falls

**4:**295-316 (Nov.) 1951

*Rationale and Technique of Sex Hormone Replacement in the Aged Female: Preliminary Result Report. W. H. Masters.—p. 296.

**Sex Hormone Replacement in Aged Women.**—Sex hormone replacement in women to avoid the results of metabolic imbalances associated with the menopause has been recommended by some clinicians, while others have warned against it because the sex steroids may be carcinogenic. Experiments were instituted on aged female patients (65 to 85 years) at the St. Louis City Infirmary. Bedridden as well as physically active patients were selected, and women with diabetes, essential hypertension, or advanced arthritis were included. Patients were first given a complete physical and laboratory examination. Estradiol benzoate was administered in cycles until withdrawal bleeding could be obtained. Then the patients were treated by one of the following methods: (*1*) cyclic estrogen exhibition and withdrawal at regular intervals to shed the endometrium; (*2*) constant estrogen influence with cyclic progesterone exhibition and withdrawal to shed the endometrium; (*3*) constant estrogen influence with cyclic testosterone exhibition and withdrawal to shed the endometrium; and (*4*) constant estrogen influence and testosterone opposition to such a degree that hyperplasia is avoided and shedding of the endometrium unnecessary. All patients were subjected to repeated physical and laboratory check-ups while under therapy. There was a generalized physical and mental improvement in many of the patients under long continued therapy. Occasionally improvement was startling. The investigators cannot explain clinical improvement on the basis of laboratory findings, as results of most tests were consistently negative. Early autopsy findings suggest important changes in the vessel walls of target organs.

## Urologic & Cutaneous Review, West Palm Beach, Fla.

**55:**649-714 (Nov.) 1951. **Partial Index**

Pneumopyelography. J. S. Ritter and W. H. Shehadi.—p. 649.
*Genital Edema in Carcinoma of Prostate. C. R. O'Crowley and A. R. Fernicola.—p. 652.
Androgenic Adenoma of Adrenal Gland. S. F. Wilhelm and L. Kamens.—p. 659.
Plastic Operation for Benign Lesions of Urethral Meatus. L. C. Scheffey and W. R. Lang.—p. 665.
Normal Intravenous Pyelograms in Presence of Hydronephrosis. C. Ney.—p. 667.
Hemangioma of Kidney: Review of Literature. L. E. McCrea.—p. 670.
*Calcification of Renal Artery Manifested by Gastro-Intestinal Tract Symptoms. J. C. Kimbrough.—p. 680.

**Genital Edema in Carcinoma of Prostate.**—The patient described had atypical features of carcinoma of the prostate, with massive edema of the penis and scrotum as an initial sign; greatly enlarged inguinal lymph nodes; a normal sized, soft, movable prostate gland with no induration; perirectal lymph nodes found on rectal palpation; low grade fever; and a fulminating course. The authors conclude that edema of the penis and scrotum with inguinal lymphadenopathy may at times be the only clinical manifestation of carcinoma of the prostate, and that far-advanced, retrograde lymphatic carcinomatosis can occur in the absence of urinary symptoms, pain, induration of the prostate, and osseous metastases. The so-called soft carcinoma apparently lacks the fibrous tissue responsible for hardness. An explanation is that the soft prostate is more cellular and that in these cases the cellular activity is more accelerated than the response of the fibromuscular stroma. It may be that intra-acinar rather than extra-acinar malignant cell growth occurs, that it does not induce a fibrous tissue reaction, and that it advances more rapidly in the tubules than in the stroma. When pelvic lymph nodes are palpable per rectum in the absence of induration of the prostate and seminal vesicles, the serum acid phosphatase should be determined to aid the diagnosis.

**Gastrointestinal Symptoms in Renal Disease.**—Kimbrough reports the case of a woman, aged 47, whose illness began with pain in the upper part of the abdomen, indigestion, flatulence, and general abdominal discomfort. The patient was treated for gallbladder and gastrointestinal disease. When the symptoms persisted, a thorough examination of the liver, gallbladder, gastrointestinal tract, and cardiovascular system was made, but no abnormality was found. X-ray examination revealed a density in the region of the upper pole of the right kidney and a tubular density near the same kidney, and a urological examination was made. Excretory and retrograde urograms showed moderate hydronephrosis and nephroptosis of the right kidney. At operation a calculus 1 cm. in diameter was found in the upper right calix. The right kidney was removed. Recovery was uneventful, and the symptoms were completely relieved. Pathologic studies disclosed a calcified artery at the hilus. The author states that the literature contains many reports of renal disease manifested by gastrointestinal symptoms, yet patients with renal disease are often treated many months for liver, gallbladder, and gastrointestinal tract disease before a complete urological examination is done.

## Western J. Surg., Obst. & Gynecology, Portland, Ore.

**59:**551-602 (Nov.) 1951

Some Factors Concerned with Liver Injury. I. S. Ravdin.—p. 551.
Intramedullary Nailing of Ulna in Fractures of Both Bones of Forearm in Adults. C. E. Anderson.—p. 559.
Management of Vaginal Bleeding During Last Trimester of Pregnancy. R. E. Crowder, E. S. Bills and J. B. Claire.—p. 565.
Points of Perineal Repair Technic. A. P. Hudgins.—p. 570.
Surgical Problems in the Aged. M. W. Durham.—p. 574.
*Surgical Repair of Esophageal Hiatus Hernia: Modification in Technic. C. E. Rees.—p. 579.
Surgical Extirpation of Tuberculous Psoas Abscess: Preliminary Report on Six Cases. J. A. Weinberg.—p. 584.
Experimental Studies on Circulation to Liver in Relation to Protacaval Anastomosis. R. Cohn and J. Connelly.—p. 589.

**Surgical Repair of Esophageal Hiatus Hernia.**—From 1940 to 1950 a total of 212 cases of esophageal hiatus hernia were detected roentgenologically at this clinic. In 15 surgical repair was done. The remaining 197 patients were treated by dietetic and general medical means. Patients receiving medical treatment because the hernia is small and the symptoms slight should be kept under observation, since herniation tends to be progressive. The symptoms of hiatus hernia may simulate those of coronary disease, gastric and duodenal ulcer, gallbladder disease, and functional digestive syndromes. It is, therefore, imperative that these patients be studied completely and carefully so that, when surgical repair is recommended, the surgeon can be reasonably certain that the hiatus hernia is the source of the symptoms. Surgical repair is recommended if symptoms are distressing, hemorrhage occurs, or bleeding is continual. Of the 15 patients operated on by the author, repair was done in three by the transabdominal route and in 12 by the transthoracic route. Reasons are given for favoring the latter approach. There were no deaths, but one recurrence in each group. A surgical modification is described, wherein the diaphragm is incised and the upper end of the greater curvature of the stomach is sutured to the under surface of the diaphragm to keep the stomach and lower end of the esophagus in the abdomen while adhesion of the esophagus to the hiatal margin is taking place.

V 14
1952

## FOREIGN

### Acta Obstet. et Gynec. Scandinavica, Stockholm

**31:**1-108 (No. 1) 1951. **Partial Index**

Interlocked Twins: Report of Two Cases. B. Stenström.—p. 1.
Climacteric Following Supravaginal Hysterectomy. K. Knutsen.—p. 9.
*Early Ambulation Following Delivery. H. Zilliacus.—p. 25.
Level of Diastase and Sugar in Blood of Nursing Women. J. A. Abolins.—p. 39.
Jaundice During Pregnancy. M. Ingerslev and G. Teilum.—p. 74.
Small-Cystic Degeneration of Ovaries as Incidental Finding in Gynecological Laparotomies. P. Vara and K. Niemineva.—p. 94.

**Early Ambulation After Delivery.**—Early ambulation after delivery was recommended by Küstner in Germany in 1878 and by Ries in the United States in 1899, but both were considered heretics by their contemporaries. Since 1924 early ambulation has been urged with increasing frequency after surgical procedures, but it has not been so widely recommended after delivery. At the Women's Clinic of the University of Helsinki early ambulation after delivery has been practiced since 1939. The effect of early ambulation after delivery on the incidence of puerperal complications was studied in 12,847 women. Within eight days of delivery 10,194 patients had left the hospital; in cases in which a cesarean section had been performed, the patients left on the 10th to 14th day. There were no deaths among the patients in whom early ambulation was encouraged. The author cites statistics on the incidence of pneumonia, thrombosis, pulmonary embolism, and various other complications, and says that while it must be admitted that the effect of early ambulation with regard to displacement of the uterus is still uncertain, its many advantages outweigh a few possible disadvantages. The women in whom early ambulation was encouraged regained their general physical well-being very rapidly.

### Archiv für klinische Chirurgie, Heidelberg

**269:**183-280 (No. 3) 1951. **Partial Index**

Parasternal Diaphragmatic Hernia. M. Lüscher.—p. 183.
Eosinophilic Infiltration of Gallbladder. G. Linzenmeier.—p. 215.
*Limitations of Sympathectomy in Disturbances of Peripheral Blood Perfusion: Critical Evaluation of Preoperative Tests. J. Koncz.—p. 223.
*Histological Picture and Prognosis of Carcinoma of Breast. H. Chiari.—p. 247.

**Sympathectomy in Disturbances of Peripheral Circulation.**—The value of a test preceding sympathectomy is most clearly shown in cases of organic circulatory disturbances, when clinically necrosis seems evident or possible and survival of an extremity is doubtful. Following critical evaluation of preoperative tests, the author discusses the possibilities of measuring the collateral circulation and the effects of a sympathectomy on blood circulation and metabolism. His explanation of the close connection between circulation and metabolism and its dependence on the sympathetic innervation make it clear that, if sympathectomy is done in unsuitable cases, a threatening impairment of the circulation or of the oxygen supply of the tissue may be intensified by the intervention on the sympathetic system. Four case histories are presented in which intervention on the sympathetic system was largely responsible for the rapid deterioration of the circulation of an extremity. The author stresses that in obliterating vascular diseases the fate of a diseased extremity depends on the condition of the collateral circulation. Information as to whether sympathectomy will improve the circulation in such cases is provided by continuous thermoelectric measurement of the skin temperature and by a test employing venous stasis. Sympathectomy produces much more than simply an increase in circulation. An increase in blood volume seems to be a secondary effect of the increased metabolic oxygen requirements resulting from abolishing metabolism-inhibiting sympathetic impulses. On the other hand, if the sympathetic tonus is increased, the metabolic oxygen requirements are less as the result of neurogenic limitation of oxidative processes. This explains the increased oxygen content of the venous blood of a diseased extremity. Thus there are cases of defective circulation in which sympathectomy not only is not helpful but may actually cause further deterioration of impaired tissue.

**Histologic Picture and Prognosis of Breast Carcinoma.**—Chiari discusses the histologic picture of mammary carcinoma on the basis of 1,600 surgically removed breasts. Scirrhous carcinoma was found in 603 cases, or 37.6%, among which were 391 patients with purely scirrhous and 212 with solid scirrhous carcinoma. Solid medullary carcinoma was found in 125 (7.9%) of the patients. Diffuse carcinoma, also known as carcinomatous mastitis, was observed in only 17 (1%) of the patients. Carcinoma solidum simplex was relatively frequent, accounting for a total of 581 cases (27.5%). In the 441 cases with the pure form of carcinoma simplex, cancer cells were found only in the stroma, but in the remaining 140 cases they also showed intracanalicular localization. The mammary cancer designated as carcinoma cribosum or duct carcinoma was identified in 86 (5.3%) of the cases. In this type 18 cases of the intracanalicular form, the so-called pure cases were differentiated from those with the extracanalicular form. The differentiation between "pure" and "also extracanalicular" is made in the comedo carcinomas, accounting for 5 and 25 cases, respectively. There was a total of 124 cases of adenomatous carcinoma, including 16 cases of the purely adenomatous form, 33 cases of the adenomatous papillary form, and 75 cases of the semiadenomatous form. Gelatiniform carcinoma was observed in 29 (1.8%) of the cases. Carcinoma basocellulare was seen in only five cases. Discussing the relationship between lymph node involvement and survival, the author states that in the most frequent histologic forms (scirrhous and simplex) the incidence of lymph node involvement is almost equally high (66% and 74%), and the prognosis therefore equally unfavorable. The fortunately rare diffuse carcinoma has an unfavorable prognosis, but the adenomatous forms have a relatively favorable prognosis. In the types in which intra and extracanalicular growth can be differentiated, those with extracanalicular growth generally have a higher rate of lymph node involvement, but it is not justifiable to consider the prognosis of the adenomatous carcinomas as always more favorable than for the scirrhous carcinomas, because among the former some are highly malignant.

### British Journal of Ophthalmology, London

**35:**573-636 (Oct.) 1951. **Partial Index**

Hereditary Degeneration of Mouse Retina. K. Tansley.—p. 573.
Present Status of Physiotherapy in Ocular Disease. P. D. Trevor-Roper.—p. 583.
Closed Branches of Conjunctival Vessels. A. Loewenstein.—p. 595.
Trachoma: Diagnosis and Treatment. L. de Andrade.—p. 601.
Proptosis Caused by Hydatid Disease. Ahmad Bey Handousa.—p. 607.
Factors Affecting Penetration of Antibiotics into Aqueous Humour. M. Langham.—p. 614.
Theoretical Considerations for Artificial Corneal Implant. O. E. E. Anderson.—p. 628.

### British Medical Journal, London

**2:**1233-1294 (Nov. 24) 1951

Psychiatry of Cerebral Diseases. M. Bleuler.—p. 1233.
Social Adjustment of Neurotic Patients After Prefrontal Leucotomy. A. A. Baker and L. Minski.—p. 1239.
Simple Gastric Ulcer and Carcinoma. B. F. Swynnerton and S. C. Truelove.—p. 1243.
*Use of Oral Cortisone in Paediatrics. B. Wolman.—p. 1246.
Iron Metabolism in Pregnancy. A. Klopper and S. Ventura.—p. 1251.
Diabetic Gangrene. A. Grunberg, H. L. Davies and J. L. Blair.—p. 1254.
Associated Perforation and Haemorrhage in Peptic Ulcers: Treatment by Immediate Gastrectomy. N. S. Slater.—p. 1257.
Bronchiectasis with Unsuspected Foreign Body. B. P. Moore.—p. 1259.

**Oral Administration of Cortisone to Children.**—Three children with rheumatoid arthritis, one child with acute rheumatic pericarditis, and one child with nephrosis were given 25 mg. tablets of cortisone acetate once, twice, or three times daily as required. The oral administration of cortisone suppressed the rheumatic process in the three children with rheumatoid arthritis and the child with rheumatic pericarditis. Diuresis was produced and a remission obtained in the patient with nephrosis. Equal amounts of cortisone given orally were as promptly and as completely effective as cortisone given parenterally as long as the total daily dose was given in divided amounts two or three times a day.

## Canadian Medical Association Journal, Montreal

**65:**523-622 (Dec.) 1951

Aspects of Anaesthesia. H. R. Griffith.—p. 523.
Accidents in Children. C. Collins-Williams.—p. 531.
Studies on Poliomyelitis in Ontario: V. Further Observations on Recovery of Coxsackie Viruses from Cases of Clinical Poliomyelitis. N. Silverthorne, C. Anglin, J. B. J. McKendry and others.—p. 536.
Decline of Artificial Pneumothorax. W. B. Phair.—p. 542.
Leukaemia in Children. C. L. Rodgers, W. L. Donohue and C. E. Snelling.—p. 548.
*ACTH and Cortisone in Treatment of Acute Leukaemia. D. G. Cameron, S. R. Townsend, E. S. Mills and W. H. Mathews.—p. 552.
Folic Acid and Antagonists in Treatment of Leukaemia in Children. B. Laski, J. M. M. Darte, C. E. Snelling and W. L. Donohue.—p. 556.
*ACTH and Cortisone in Treatment of Leukaemia in Children. J. M. M. Darte, C. E. Snelling, B. Laski and others.—p. 560.
ACTH and Cortisone in Treatment of Pemphigus Erythematosus. J. Mallek, B. Kanee and J. Zack.—p. 564.
Phosphorus Sesquisulphide Poisoning. J. F. Burgess.—p. 567.
Radiologist and Epigastric Pain. A. E. Broome.—p. 569.
Schistosome Dermatitis in Quebec. M. J. Miller and E. Monroe.—p. 571.
Laryngeal Swab Specimen in Cultural Diagnosis of Pulmonary Tuberculosis. A. R. Armstrong.—p. 575.
Conservative Treatment of Sinusitis. G. E. Tremble.—p. 578.
Studies on Fungistatic Powers of New Benzothiazol and Antihistaminic Compound. E. E. Seale.—p. 582.

**Corticotropin and Cortisone in Acute Leukemia.**—The observation that increased function of the adrenal cortex in animals causes involution of normal lymphoid tissues, that administration of compound E causes regression of a lymphoid tumor in mice, and that alterations in adrenal cortical function occur in patients with lymphoid neoplasms suggested that administration of cortisone or corticotropin (ACTH) might influence favorably the course of acute leukemia in man. Nine patients with acute leukemia were treated with corticotropin or cortisone at the Montreal General Hospital from December, 1949, to December, 1950. Despite this treatment all had died by June, 1951. Five of the patients died within a month, three others in less than six months, and the longest survivor lived for only nine months from the onset of the disease. It is concluded that corticotropin and cortisone were of little practical value in the treatment of these nine cases of acute leukemia, although clinical improvement occurred in each of the 9 patients while hormone therapy was being given.

**Corticotropin and Cortisone in Leukemia in Children.**—In all, 37 children with leukemia were treated with corticotropin (ACTH) and/or cortisone. There were 20 boys and 17 girls from 15 months to 14 years of age. In all cases the history and clinical condition at the time of first admission indicated that the expected survival time without treatment would have been less than one year. Periods of treatment that resulted in complete remission varied from 15 to 35 days. Temporary remissions occurred in approximately 50% of the patients, but none could be considered as cured or permanently benefited. Although repeated remissions were obtained in a few children, all eventually became refractory to further hormone therapy. The authors feel that corticotropin and cortisone, although unsatisfactory for the permanent treatment of leukemia in children, are valuable in the further investigation of this disease.

## Cardiologia, Basel

**18:**321-376 (No. 6) 1951

The Electrocardiogram in Acute Poliomyelitis. P. F. Reubi and G. Bornstein.—p. 321.
Constitutional Changes in Patients with Coarctation of the Aorta. P. I. Halonen, P. E. Heikel and P. Majanen.—p. 333.
Quantitative Representation of Given Vectors in the Unipolar and Bipolar Extremity Leads and the Goldberger Leads. V. H. Gillmann.—p. 339.
Electrophysiologic Investigations on the Starling Heart-Lung Preparation. V. W. Brendel, H. Gladewitz, F. Hildebrandt and W. Trautwein.—p. 345.
*Acute Non-Specific Myocarditis in Scarlet Fever and Acute Hemolytic Tonsillitis: Clinical Investigation of 3,069 Cases of Scarlet Fever, 798 Cases of Acute Tonsillitis, and 33 Cases of Hemolytic Streptococcus Carriers. E. Bengtsson, G. Birke and H. Wingstrand.—p. 360.

**Myocarditis in Streptococcal Infections.**—Acute nonspecific myocarditis was found in 3.9% of 3,069 cases of scarlet fever and in 4.4% of 798 cases of acute tonsillitis due to hemolytic streptococci. Among the adults in the group the incidence of myocarditis was 9% in scarlet fever and 9.4% in tonsillitis. Among the children the corresponding figures were 3.7% and 2.8%. No case of myocarditis was found in 333 carriers of hemolytic streptococci. Myocarditis appeared during the first week of illness in about half the cases, but lasted only a few weeks in the majority. Convalescence was slower in patients with myocarditis than in those with uncomplicated infections. The diagnosis of myocarditis was based on the presence of electrocardiographic changes, usually accompanied by tachycardia and often by transient murmurs, increased antistreptolysin titers, and greatly increased sedimentation rates. Electrocardiographic changes occurred chiefly in the ventricular complex. T wave changes were the only abnormality in the tracings of 60% to 65% of these patients. The authors believe that greater attention should be given to the cardiac complications of acute tonsillitis. While in their series myocarditis had an innocuous course they believe that in some cases it may lead to hypertrophy of the heart and scar formation. In adults it persisted longer and had more pronounced effects than in children.

## Deutsche medizinische Wochenschrift, Stuttgart

**76:**1421-1484 (Nov. 16) 1951. **Partial Index**

Myocardosis, Endocardosis and Cardiosclerosis. F. Lange.—p. 1421.
*Chemotherapy and Tamponade of Lung Cavities. G. Maurer.—p. 1423.
Bone Marrow Atrophy and Bone Marrow Fibrosis. R. Stodtmeister and S. Sandkühler.—p. 1431.
*Pathogenesis, Diagnosis and Treatment of Acute Pancreatic Necrosis. H. Wildegans.—p. 1458.

**Chemotherapy and Tamponade of Lung Cavities.**—The proposed modification of surgical treatment of large lung cavities has three phases as follows: Cavernostomy is the preparatory phase by which a canal is created between the skin and the cavity wall, i. e., a stoma that may be enlarged gradually with dechloridated Laminaria packing. This is followed by the main phase of treatment by tamponade of the disintegrating cavity with gauze strips soaked with a 5% solution of *p*-aminosalicylic acid, to which 250 units of penicillin per cubic centimeter had been added. Instillation of the chemotherapeutic solution may be repeated with an olive-pointed sound at two hour intervals. Simultaneously 3 to 5 tablets (150 to 250 mg.) of ethyl-ureidebenzal-thiosemicarbazone ("tebazyl") should be given daily by mouth. Intracavitary injections of streptomycin may be reserved for patients with toxic manifestations due to thiosemicarbazone, or may be used as additional treatment for intercurrent disseminations. After the cavity has become sterile and shrunk and tuberculous foci may no longer be demonstrated on endoscopy, closure of the draining bronchi should be attempted by production of an eschar with the aid of high frequency electric current or other measures. The stoma may close spontaneously in from several days to four weeks after this final phase of the treatment, and a small funnel-shaped cutaneous scar remains. To prevent complications the pleural cavity must be completely obliterated; artificial pleural synechia may be obtained occasionally with repeated kaolin injections. In addition the vital capacity must be determined, and the lower limit of 1,300 cc. should never be exceeded. Seven cases are reported that show that the sputum of the patients with cavernous breakdown may become negative within two months after the tamponade with chemotherapy. Because of sterilization of the disintegrating cavity, the occurrence of bronchial fistula, the most frequent and dangerous risk associated with lobectomy and pneumonectomy, may be prevented. The method is particularly recommended for treatment of tuberculous cavities in aged patients and is of vital importance for mother and child when performed in tuberculous women before conception or during pregnancy.

**Acute Pancreatic Necrosis.**—Of 205 patients with acute pancreatic necrosis, 144 (70%) were women and 61 (30%) were men. After a sudden decrease in the incidence of acute pancreatic necrosis in Germany during the hunger years 1945-1946, the incidence increased as nutrition improved. The bile ducts are a significant part in the pathogenesis of this disease; of the 205 patients with acute pancreatic necrosis, 187 (91%) had cholelithiasis and cholecystitis, and 14 (7%) had choledocholithiasis. According to the canalicular concept of the pathogenesis of acute pancreatic necrosis, the bilipancreatic reflux activates trypsin, but the author considers this explanation unsatisfactory. The formation of large sequestrums in the pancreas suggests

V 14
1952

that the blood supply has been disturbed (vascular concept). In three fatal cases of acute pancreatic necrosis necropsy revealed processes of the endarteritis obliterans type. The significance of the functional neuromuscular and neurovascular factor is emphasized. Acute and chronic involvement of the pancreas frequently may result from biliary colic, but the classic picture of acute pancreatic necrosis may not be observed. The author's clinical observations did not confirm that an allergic-hyperergic reaction is a factor in the disease, but endocrine influences may play a decisive part. Pancreatic edema is not to be considered a variety of acute pancreatic necrosis, but is a preliminary phase of the disease. Determinations of pancreatic ferments and tests of endocrine pancreatic function (hyperglycemia, amylosuria, lipasemia, hypoprothrombinemia, and hypocalcemia) are of considerable aid in establishing a tentative diagnosis. Of the 205 patients, 22 with doubtful diagnosis were subjected to laparotomy while surgical treatment was delayed for 183 patients with established diagnosis. Of 66 patients who after three to six weeks of conservative treatment were subjected to secondary cholecystectomy and drainage of the common bile duct, 59 made a complete recovery. The presence of an intrapancreatic or parapancreatic abscess necessitates drainage as soon as possible.

## Hospital, Rio de Janeiro

5:665-842 (Nov.) 1951. **Partial Index**

*Fetal Opisthotonos in Face Presentation. O. Sandoval.—p. 697.

**Opisthotonos in Face Presentation.**—Delivery of the child in face presentation is a rare cause of opisthotonos in the newborn, but intracranial hemorrhage, meningitis, tetanus, tetania (hypoparathyroidism), hydrocephaly, and kernicterus are more frequent causes. In face presentation, opisthotonos is due to sustained strong contraction of the dorsal muscles of the child in the uterus with consequent extreme hyperextension of the child's back during delivery. In the Maternity Hospital of the National Faculty of Medicine of the University of Brazil, of a total of 7,222 deliveries observed in four years, 13 were face presentations. This is 1 infant born in face presentation for every 555 deliveries. In face presentation the membranes are ruptured early. Delivery of the child is delayed two to four hours in comparison with normal delivery. In most cases a cesarean section is indicated. The face of the newborn shows edema of the lips, cheeks, and eyelids. A mucoserous secretion is eliminated from the mouth and eyes. Sometimes the infant cannot take the breast for the first few days after birth. There are minute subconjunctival hemorrhages. The thyroid is swollen. In cases of opisthotonos the head remains in extreme extension about a week and then spontaneously returns to normal position after the face has become normal. Intracranial hemorrhage or meningitis may be diagnosed as the cause of the opisthotonos. This condition has been reported in the literature only in two cases. It occurred in one of the 13 cases of face presentation observed by the author.

## Lancet, London

2:947-996 (Nov. 24) 1951

Mechanics of Voluntary Muscle. A. V. Hill.—p. 947.
*Primary Partial Gastrectomy for Perforated Ulcer. J. F. Nuboer.—p. 952.
Differences in Behaviour of Sensitised Red Cells to Agglutination by Antiglobulin Sera. J. V. Dacie.—p. 954.
Demonstration of Multiple Antibodies in Antiglobulin Sera. H. Crawford and P. L. Mollison.—p. 955.
*Evolution of Toxic Thyroid Gland: Clinical and Pathological Study Based on 2,114 Thyroidectomies. T. Levitt.—p. 957.
Use of Depressant and Relaxant Drugs in Infants and Children. S. M. Anderson.—p. 965.
Adrenaline and Noradrenaline Concentrations in Adrenal Glands at Different Ages and in Some Diseases. G. B. West, D. M. Shepherd and R. B. Hunter.—p. 966.
Aluminium Foil on Operation Wounds. W. F. W. Southwood.—p. 969.
Nerve Nipping at Intercostal Margin. F. H. Stevenson.—p. 969.

**Primary Partial Gastrectomy for Perforated Ulcer.**—Nuboer says that in Holland partial gastrectomy was first recommended for perforated ulcer in 1933. At first it was performed only on young patients, and preferably within six hours of perforation. Favorable results led to broadening of the indications; and since 1943 partial gastrectomy has been done in nearly all cases of perforated ulcer at the Utrecht University Hospital. Of a total of 212 patients with perforated ulcer treated at this hospital in the last 11 years, 131 were subjected to primary partial gastrectomy. Most of the patients were operated on within nine hours of the perforation by the Polya modification of the Billroth II method. Five or 3.8% of the patients died, three of peritonitis, one under the anesthetic, and one as the result of an injury to the biliary and pancreatic ducts. As the primary mortality is lower than that attained with simple suture of the perforation or with conservative treatment, and as the late results also surpass those obtained with the other two methods of treatment, the author feels that partial gastrectomy should be adopted as the standard treatment for perforated peptic ulcer.

**Evolution of Toxic Thyroid Gland.**—Hitherto it has been widely accepted that the various diseases of the thyroid bear little if any relation to one another. However, a close study of 2,114 consecutive patients who underwent thyroidectomy has led Levitt to believe that these apparently separate conditions are actually successive stages in a single disease of the thyroid. Pathologically 706 thyroids were typical of epithelial hyperplasia, and 704 were examples of the lymphoid phases of the toxic thyroid gland. It is suggested that the toxic thyroid gland evolves from the epithelial hyperplasia characteristic of classical Graves' disease, through successive phases of lymphoepithelial hyperplasia, focal and then diffuse lymphoid hyperplasia, and fibrolymphoid hyperplasia, to the final stage of fibrosis. The microscopic, macroscopic, and clinical features of these stages are defined and analyzed. The patients' age, the degree of toxicity, exophthalmos, lid retraction, recurrence rate, preoperative, and postoperative weights, and the incidence of postoperative hypothyroidism all show a transition that closely corresponds to the pathological phases of the thyroid gland. In succeeding phases the epithelial elements of the degenerating toxic thyroid gland diminish. The lymphoid tissue waxes and then wanes. The final state of irreversible fibrosis terminates this process. The degenerated and atrophied epithelial cells are steadily buried by masses of lymphoid tissue. These islets of epithelial cells may flare up into intense regenerative hyperplasia, with short-lived toxicity, and then revert to a state of myxedema. In the final phase of fibrosis the many extraglandular adhesions make simple thyroidectomy a hazardous procedure. The more lymphoid or fibrous its constituents, the less toxic does the gland become, thereby diminishing or eliminating the need for preoperative antithyroid drugs. The more epithelial elements present, the smaller should be the thyroid residue left at operation, and the greater is the need for ligation of the inferior thyroid arteries. Persistent or recurrent thyrotoxicosis of epithelial hyperplasia may necessitate another operation or use of radioactive iodine. Subsequent hypothyroidism in the phase of lymphoid hyperplasia and the development of myxedema in the fibrolymphoid phases must be treated by thyroid substitution therapy.

## Maandschrift voor Kindergeneeskunde, Leyden

19:407-422 (Nov.) 1951

Blood Coagulation and Blood Proteins. E. Gorter.—p. 407.
*Four Years' Experience in Treatment of Tuberculous Meningitis. C. Hooft and V. Deneve.—p. 423.

**Treatment of Tuberculous Meningitis.**—Of 143 children with tuberculous meningitis who were treated between May, 1947, and January, 1951, 21 died within three days of admission. In July, 1951, 63 or nearly half of the remaining 122 were living. The authors gained the impression that the intramuscular injection of *p*-aminosalicylic acid must be continued uninterruptedly for at least six months, the daily dose for infants being 500 mg. and for older children up to 1 gm. Treatment with streptomycin should be gradually discontinued after six months. For the intrathecal administration of streptomycin, small doses should be used (25 to 50 mg.), and they should not be given too often. When the protein index of the cerebrospinal fluid rises, frequent punctures are indicated, but without injection of streptomycin. With this treatment 23 of 32 patients over two years old survived. Unfavorable prognostic factors are low age, late diagnosis, and sensory disturbances on admission.

## Medical Journal of Australia, Sydney

2:517-548 (Oct. 20) 1951

*Congenital Pulmonary Valvular Stenosis. R. B. Blacket, A. J. Palmer and E. J. Halliday.—p. 517.
Cooley's Anaemia: Review and Presentation of Affected Family. S. J. Baker and J. J. M. O'Neill.—p. 527.
Aids to Easy Breathing. D. G. Renton.—p. 531.
Diphyllobothrium Latum (Linné) in Australia. D. F. Sandars.—p. 533.

2:549-580 (Oct. 27) 1951

Role of Adrenal Cortex in Disease. K. Harrison.—p. 549.
Emotional Factors in Allergy. D. Ross.—p. 553.
Emotional Factors in Allergy. H. J. Prior.—p. 556.
Osmotic Theory of Eclampsia and Mechanism of Water Retention. J. C. Edwards.—p. 559.
The "Kink" in the Aorta. J. B. Cleland.—p. 564.

**Congenital Pulmonary Valvular Stenosis.**—Congenital stenosis of the pulmonary valve without overriding of the aorta or ventricular septal defect was recognized in 1859. After citing figures on the incidence of this defect, the authors stress the importance of the foramen ovale or other defect of the interauricular septum in the clinical picture. They present clinical and physiological observations on 11 cases of congenital pulmonary valvular stenosis. This lesion must always be considered in the differential diagnosis of patients with congenital heart disease, particularly in those who are not cyanotic and have basal murmurs. In severe and moderately severe cases the clinical picture is characteristic enough to be recognized by clinical methods. Mild cases in which the electrocardiogram is normal cannot be diagnosed with certainty. In both the mild and more severe cases a complicating left-to-right shunt through a patent ductus arteriosus or a ventricular septal defect may be unsuspected clinically and can be demonstrated only by cardiac catheterization. In moderately severe cases the following signs are found: (*1*) A systolic murmur and thrill maximal in the second left intercostal space and propagated towards the clavicle; (*2*) right ventricular enlargement as shown by a palpable systolic impulse between the apex and the sternum, forward projection of the right ventricle in the left oblique position at fluoroscopy, and an electrocardiographic pattern showing right ventricular hypertrophy or incomplete right bundle branch block in the precordial leads; (*3*) dilatation of the pulmonary artery, which may include the left main branch, with otherwise normal or diminished nonpulsatile right and left branches, and normal peripheral lung fields. In severe cases, in addition to the findings mentioned under (*1*) and (*2*) above, there may be a prominent "a" wave in the venous pulse, occasionally with a pulsating liver, slight cyanosis, and dilatation of the right auricle and an enlarged pulmonary artery, with small nonpulsatile branches and abnormally translucent lung fields. Severely affected patients with a small patency of the foramen ovale should be distinguished from those with a larger defect in the auricular septum. The latter are usually more deeply cyanosed and behave more as patients with the tetralogy of Fallot than as patients with "pure" pulmonary stenosis. Surgical dilatation of the stenosed pulmonary valve is practicable, but so many patients survive past middle age that the authors recommend valvulotomy only for those with a bad prognosis.

## Schweizerische medizinische Wochenschrift, Basel

81:1117-1140 (Nov. 17) 1951. **Partial Index**

Bronchial Asthma and Allergic Manifestations of Skin Caused by Complex Salts of Platinum; New Occupational Disease. A. Jordi.—p. 1117.
*Immunization of Children to Diphtheria, Tetanus and Smallpox. J. R. Dreifus.—p. 1124.
*Osteomyelitis After Trauma in Infants. R. Garsche.—p. 1131.

**Immunization Against Smallpox, Diphtheria, and Tetanus.**—The occurrence of postvaccinal encephalitis is reported in a male infant who was immunized against smallpox at the age of 17 months. A case is also reported of pseudovaccinal fever after immunization against smallpox in a girl aged 3 years who had pyelocystitis associated with fever. The author advocates immunization of children against smallpox between the 10th and 12th months of life provided there are no contraindications. The vaccination incision should not be longer than 1 cm., and the dose should be individualized. Vaccination should be repeated rather than too high a dose used at one time. A case of relative failure of prophylactic immunization to diphtheria after the administration of only two doses of diphtheria toxoid is briefly reported. Two cases of serum disease after tetanus serum prophylaxis are mentioned. Immunization to diphtheria with toxoid should be carried out in children by two years of age, because resistance to diphtheria is lowest at this age, and combined diphtheria-tetanus toxoid should be employed. This method of vaccination has the advantage that immunity against both diphtheria and tetanus will be increased, and the majority of the children will be immunized to both tetanus and diphtheria. Even in children between the ages of seven and eight years, the first immunization dose should not be higher than 0.7 to 0.8 cc. The full second and third doses should be given if there was no reaction to the preceding dose. In about 400 children between the ages of 7 and 9 years who were immunized with diphtheria-tetanus toxoid (about 1,200 injections), the reactions were mild, except for occasional slight temperature elevation and local redness. In the presence of possible diphtheria infection or of a suspicious wound, a stimulating toxoid dose should be administered even one to two years after the immunization; within 4 to 10 days this stimulating dose will provide a sufficient increase of immunity. Children given serum prophylaxis should later be actively immunized to diphtheria and tetanus to exclude the risk of anaphylaxis. Since immunity can be demonstrated only after the second dose of toxoid, and since the immunity first becomes maximum five to seven weeks after the third dose, tetanus and diphtheria serum should be administered in the presence of a possible infection if five weeks have not passed since administration of the third dose of toxoid. If more than three weeks have passed since the administration of the first or second dose of toxoid, the next dose of toxoid should be given in addition to serum prophylaxis in the presence of possible infection.

**Osteomyelitis Following Puncture Trauma.**—The occurrence of osteomyelitis after puncture trauma is reported in two infants. The toxic condition of the first patient with coli meningitis associated with severe vomiting required the intraossal infusion of a mixture of Ringer's solution and dextrose into the medullary cavity of the tibia. With this technique there is a greater risk of osteomyelitis than with aspiration of the bone marrow cavity for diagnostic purposes. Apparently a site of decreased resistance may be created by prolonged infusion. Frequently infection seems to be of endogenous origin rather than caused by infectious agents that have entered the puncture tract. Infants with bacteremia may often be exposed to this risk, particularly since intraossal infusion is indicated only in severely ill infants, and then only after intravenous administration is no longer possible. Within 10 to 14 days after the infusion a roentgenologic examination should be made of the bone in which the infusion has been given, since the osteomyelitis may be clinically latent for a prolonged period. Withdrawal of blood by puncture of the heel was done for hematological examination in a second infant with erythroblastosis fetalis. An encapsulated soft tissue abscess developed from infection of the puncture canal and the inflammation extended to the adjacent bone. The osteomyelitic infection of the calcaneus caused much bone destruction. Healing of the inflammatory process in both cases followed antibiotic therapy. The fact that the sequestrum is absorbed emphasizes the value of early and prolonged treatment with penicillin and streptomycin.

## Strahlentherapie, Munich

85:509-638 (No. 4) 1951. **Partial Index**

Irradiation Damage to Genetic Material. H. J. Muller.—p. 509.
Radiocobalt as Plastic Material for Irradiation Treatment. J. Becker and K. E. Scheer.—p. 581.
Irradiation Damage to Retinal Glioma. A. Seuss and E. Stutz.—p. 589.
*Serious Irradiation Injury After Roentgen and Radium Treatment of an Extensive Hemangioma: Carcinoma After 26 Years. L. Diethelm.—p. 594.

**Carcinoma 26 Years After Irradiation of a Hemangioma.**—Diethelm reports on a woman who 26 years before, at the age of 21, had had a large cavernous angioma on the right thigh, knee, and leg, which in some places had been from 2 to 3 cm. in depth. The size of the lesion made surgical treatment seem inadvisable and so irradiation was employed. The patient first had been given four roentgen irradiations at intervals of four

V 14
1952

weeks. After this treatment had failed to produce the desired effect, radium containers were applied for 24 hours and once for 36 hours. As the result of this treatment the cavernous tissue was transformed into scar tissue, but a gradually enlarging ulcer developed that could not be permanently cured. Finally, 26 years after the irradiation, a squamous cell carcinoma developed, which necessitated amputation. The author also reports a case in which death resulted from the surgical treatment of an extensive cavernous hemangioma.

## Tidsskrift for Den Norske Laegeforening, Oslo

**71:**665-700 (Nov. 1) 1951. **Partial Index**

Late Results in Hospital Treatment of Obesity. S. C. Sommerfelt.—p. 671.
*Eczema Pruriginosum (Atopic Dermatitis) in Children Treated with Corticotropin. S. Hestetun and L. Wennevold.—p. 673.
*Cancer in Colon and Rectum. C. Bruusgaard.—p. 675.

**Pruriginous Eczema in Children Treated with Corticotropin.**—Hestetun and Wennevold describe three cases of pruriginous eczema in infants treated with corticotropin (ACTH) with excellent effect. The skin affection disappeared after brief treatment, the general condition improved noticeably, the lymph node swelling in the neck receded, and troublesome itching ceased. No unfavorable effects were seen. The disorder recurred on termination of corticotropin treatment, but the eczematous skin changes in two of the patients were definitely less marked than before treatment and the general condition was better. The authors consider corticotropin indicated in treatment of infantile pruriginous eczema when the eczema is generalized and resistant to local treatment, with secondary infection and dystrophy. Treatment probably should be given for six to eight days. The patients should be hospitalized. Continuous treatment is not advised at present.

**Cancer in Colon and Rectum.**—Bruusgaard says that cancer of the colon and rectum should be treated by surgical means, and radiotherapy has only a palliative effect. Preoperative care is important, and is carried out to normalize the blood content of hemoglobin, protein, electrolytes, and vitamins. The intestine is given preliminary treatment with lavage, sulfonamides, and antibiotics. During the preoperative treatment the patient is given a complete general and local examination. The operative intervention consists of radical resection of the affected part of the intestine with adjoining mesentery. In the case of tumors of the cecum, ascending colon, and hepatic flexure, hemicolectomy and ileotransversostomy should be performed, in one stage. With tumors in the transverse colon, splenic flexure, descending colon, and the proximal two-thirds of the sigmoid, colon resection is done with end-to-end anastomosis in one or two stages. With tumors in the rectum and rectosigmoid, abdominoperineal resection is performed with permanent colostomy in the proximal sigmoid loop. In patients admitted with acute ileus, abscess formation, or poor general condition, the introductory operation is the creation of a simple intestinal fistula proximal to the stenosed part. The importance of adequate after-care is stressed. The operative mortality in radical operations is at present between 3 and 6%. The percentage of cures after five years is estimated to be between 45 and 60%.

## Ugeskrift for Laeger, Copenhagen

**113:**1473-1502 (Nov. 1) 1951

*Recurrent Palmoplantar Pustolosis (Dore's Acrodermatitis). B. Heilesen and R. Hornbech-Madsen.—p. 1473.
Cases of Cancer of Pancreas Diagnosed Roentgenologically by Lateral View of Stomach. E. Hovesen.—p. 1479.

**Recurrent Palmoplantar Pustulosis.**—An average of 3% of the new patients treated in the Finsen Institute's skin clinic have palmoplantar pustulosis (Dore's acrodermatitis). From 1945 to 1950 treatment was given in 142 cases, of which 43% were in men and 57% in women. The disorder begins after puberty; 60% of the patients were between 20 and 39, 32% were between 40 and 59, only 4% were under 20, and 4% were over 60. Both hands and feet were affected in 65% of the cases, hands only in 18%, and feet only in 10%; in 7% the disorder was unilateral. In 17% of the cases psoriasis was present in other parts of the body and a pathogenetic relation between the two disorders is suggested. Treatment with penicillin (300,000 units daily for 10 days) resulted in disappearance of the pustulosis or improvement in 80% of the patients, and 38% remained free from symptoms for at least a year. Comparison with cases treated with Dreuw's ointment (an ointment of salicylic acid and chrysarobin with birch tar oil) and radium irradiation showed that of these cases only 14% were free from symptoms after a year. Clinically no difference was seen between the cases that seemed to be related to psoriasis and those that apparently depended on bacterial activity.

## Wiener medizinische Wochenschrift, Vienna

**101:**889-908 (Nov. 24) 1951. **Partial Index**

*Therapy and Prophylaxis of Tuberculosis in Childhood. H. Frey.—p. 890.
Hearing Difficulty Due to Noise and Its Prevention. E. H. Majer.—p. 892.
Experiences with Aureomycin in Pertussis. E. Martschnig and W. Rittner.—p. 895.

**Therapy and Prophylaxis of Tuberculosis in Childhood.**—With Calmette's BCG vaccine about 80% of healthy children can be immunized against tuberculosis. Children with a positive reaction to Mantoux' or Pirquet's tests may no longer be considered healthy and consequently should not be vaccinated with BCG vaccine. Because of the large number of these children who have become infected with tubercle bacilli and who are in the initial stage of the disease, it seems most urgent that clinical progression of tuberculosis may be prevented by early and adequate treatment. Several hundred children who had been exposed to tuberculosis or already had become infected were treated by the author with a suspension of extensively modified (no longer acid-fast) and killed tubercle bacilli (VMT liniment). It was applied percutaneously to the skin of the antecubital fossa. The original vaccine contained 1,000 million bacilli per cubic centimeter from which a liniment was prepared by dilution in four concentrations of 125 million, 250 million, 500 million, and 1,000 million bacilli per cubic centimeter, respectively. Inunctions were made by the child himself with his index-finger using gradually increasing doses of one to four drops of the liniment at three day intervals alternately on the right and left forearms, starting with the 125 million bacilli concentration and using one of the four concentrations after the other, until the highest dose of four drops of the highest concentration of the liniment had been applied 8 to 10 times according to the individual case and its course. In about 90% of the patients there was a pronounced favorable change in the general condition within a few weeks. The appetite was increased, with resulting increase in weight. Elevated and subnormal temperatures were restored to normal in 80% of the patients. Dry cough subsided, and in patients with expectoration the sputum contained less pus and decreased in amount. The children tended to have fewer colds and the size of the lymph nodes diminished. Refractory scrofulous inflammations of the children's eyes healed completely within several weeks, and there were no more recurrences. The use of the VMT vaccine made from modified and killed tubercle bacilli for large scale clinical trials seems desirable to determine whether it may increase the defense power of the organism.

## Zeitschrift für klinische Medizin, Heidelberg

**148:**431-532 (No. 5) 1951. **Partial Index**

TB 1 in Treatment of Tuberculosis in Patients with Diabetes. K. Repke.—p. 431.
Changes in Ganglion Cells Caused by Hypoglycemia. W. Höpker.—p. 448.
Rotation Factor in Left-Sided Hypertrophy and Its Electrocardiographic Manifestations. H. Gillmann.—p. 473.
*Suicide with Insulin. M. Gülzow.—p. 479.

**Suicide with Insulin.**—Gülzow describes a man, aged 39, who had diabetes; because of poor metabolic adjustment of his diabetes and relapsing hepatitis he was subject to hypoglycemic reactions. Without having eaten anything for 12 hours, he gave himself (with suicidal intention) an injection of 400 units of insulin. Circumstances made it impossible to begin treatment of the severe hypoglycemia before five and a half hours had elapsed. Treatment was ineffective. Necropsy revealed, in addition to the chronic hepatitis, an extensive intrameningeal hemorrhage and signs of cerebral pressure, which are regarded as the cause of death.

# BOOK REVIEWS

**How to Keep Our Liberty: A Program for Political Action.** By Raymond Moley. Cloth. $4. Pp. 339. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, 1952.

Every American eligible to vote in 1952 should read this book. It is the most complete exposition of the dangers confronting this constitutional republic from statist attack that has been published. In dignified and restrained language, Mr. Moley traces the growing peril to our liberty of the political and ideological trends of the last 20 years. The basic theses of the founders of the republic are briefly reviewed, followed by a detailed analysis of the manner in which their noble aims have been perverted and distorted by movements that have almost but not irrevocably destroyed the fundamental internal structure of the republic.

Mr. Moley has scrupulously avoided the dramatic, overzealous approach. He has presented carefully reasoned and incontrovertible evidence of socialist thinking and motivation in the present administration's activities in medicine, industry, agriculture, banking, education, and other areas.

Positive answers are proposed to the innumerable problems that confront the nation, and the ways in which those problems can be met within the framework of our traditional liberties are outlined in detail. Finally, Mr. Moley presents a plan for organized political action by citizen groups, with special emphasis on the mobilization of the great middle-income group, whose freedoms are particularly under attack but whose political actions are relatively unorganized and ineffectual.

This is in a sense a conservative manifesto, and its influence will be felt for many years to come. Socialists who read this book should think twice before continuing to promote their theories, and those interested in the preservation of this country will be provided with an enormous amount of documentary material with which to substantiate their arguments.

Here is a call for militant political action to halt the progressive impairment of our free institutions, to improve the capacity and integrity of our federal government, and to build a sound, prosperous future while retaining the genius of our checks and balances system.

**Tobacco and the Cardiovascular System: The Effects of Smoking and of Nicotine on Normal Persons.** By Grace M. Roth, Ph.D., Associate Professor of Experimental Medicine, Mayo Foundation for Medical Education and Research Graduate School, University of Minnesota, Minneapolis. Publication number 100, American Lecture Series, monograph in American Lectures in Circulation. Edited by Irvine H. Page, M.D., and A. C. Corcoran, M.D. Cloth. $2.25. Pp. 66, with 8 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

Because of the controversy concerning the effects of smoking and nicotine on the cardiovascular system, Dr. Roth performed carefully controlled experiments, using normal persons. The subjects were habitual smokers who inhaled while smoking. Careful physiological and metabolic observations were made with different brands of cigarettes, different types of cigarette paper, filters and no filters, unlighted cigarettes, and even corn silk. No changes were noted when a cigarette was puffed but not lighted and when corn silk was smoked. In all other cases in which tobacco was used and in which the cigarette was lighted, there was a decrease in the cutaneous temperature of the extremities, indicating vasoconstriction. To determine whether this effect was due to nicotine, it was administered intravenously, and similar effects were obtained; however, these effects did not occur if saline solution was given. After smoking two cigarettes, the average blood pressure increases were 19 mm. Hg systolic and 14 mm. Hg diastolic, and the pulse rate increased an average of 36 beats per minute. The electrocardiographic changes caused by smoking consisted of an increase in the heart rate, lowering of the amplitude of the T wave, and, in one person, the T wave became inverted. Investigation determined that habitual smokers showed no evidence of acquiring tolerance to the effects of smoking, and it was demonstrated that the effects of smoking were due to the nicotine.

The changes in the cardiovascular system were less marked if the nicotine content was low, but the nicotine content of the cigarette had to be decreased at least 60% in order to decrease the vascular effects. There was, however, a great variation in the amount of nicotine in the so-called denicotinized cigarettes. The amount of nicotine in these cigarettes is not sufficiently decreased to protect one against the effects of smoking. In order to determine whether alcohol would prevent vasoconstrictive effects of tobacco, patients were examined after smoking cigarettes following ingestion of alcohol. It was demonstrated that vasoconstriction from smoking could not be prevented by alcoholic vasodilatation. This monograph is a valuable contribution and should be in the library of every physician treating patients with cardiovascular disorders or those in whom there is a family history of such disturbances.

**The Enzymes: Chemistry and Mechanism of Action. Volume II, Part 1.** Edited by James B. Sumner and Karl Myrbäck. Cloth. $14.80. Pp. 790. with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1951.

This book is the third in a series that surveys the field of enzyme chemistry. It aids in evaluating the progress made in this field, and, at the same time, it helps to focus attention on areas requiring more clarifying work. The volume consists of 21 chapters; the majority deal with the enzymes involved in phosphorylation, decarboxylation, dehydrogenation, and oxidation. Among the subjects included under phosphorylation are thermodynamics and the mechanism of the phosphate bond, transphosphorylation, dephosphorylation, and the enzymes, aldolase and isomerase. The decarboxylation chapters includes discussion of the keto and amino acid decarboxylases and a brief description of desulfinase, an enzyme comparable to the decarboxylases, which causes the decomposition of sulfinic acids. Among the dehydrogenases are codehydrogenase 1 and 2, the apoenzymes, and succinic dehydrogenase. A chapter is devoted to the enzymes that cause hydrogen to be evolved, namely, hydrogenase and hydrogenylase. Enzymes involved in oxidation are discussed under the flavin-containing enzymes, the iron-containing enzymes, the copper-containing enzymes, and the oxidases, which are specific for amines, amino acids, and unsaturated fats. Two associated chapters discuss the oxidation of organic sulfur compounds and the phenomenon of luminescence. Single chapters are devoted to the theory of oxidation-reduction, anaerobic glycolysis, respiration and the Pasteur effect, and yeast and mold fermentation.

The book cites many appropriate references, including much recent material. The volume has no index, but the next number of the series will include the index for parts one and two of volume 2.

**Your Mind and Appearance: A Psychological Approach to Plastic Surgery.** By Adolph Abraham Apton, M.D. Cloth. $3. Pp. 212, with 28 illustrations. Citadel Press, 120 E. 25th St., New York 10, 1951.

Psychological reactions to various physical defects is the main theme of this work. The author attempts to describe emotional traits and adjustments and maladjustments occurring in life in relation to all periods of development. The subject matter, therefore, is divided according to the infancy and childhood, adolescent, adulthood, and aging periods. The author reminds the practitioner that deformities or malformations may have profound and lasting effects on the economic and social status of a person, as well as on his personality. He stresses the fact that early surgery can prevent subsequent psychic trauma.

The jumble of quotations interspersed in the text, plus numerous repetitions, make it difficult for the reader to follow a coherent thought or to extract the author's own views on a given

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

V 14
1952

subject. The many testimonials and the overwhelming number of case reports tax the reader's patience. Twenty-eight plates constitute a group of illustrations showing facial features before and after surgical intervention. In his preface, the author states illustrations were limited owing to the fact that patients object to publication of their photographs. There are, however, numerous ways of circumventing such objections. Illustrations are not convincing unless the actual unretouched photographs are reproduced. The book is intended for both layman and physician; the former would probably benefit more than the latter.

**The Facts of Life from Birth to Death.** By Louis I. Dublin, PhD., Second Vice-President and Statistician, Metropolitan Life Insurance Company, New York, in collaboration with Mortimer Spiegelman, F.S.A., Assistant Statistician, Metropolitan Life Insurance Company. Cloth. $4.95. Pp. 461, with 22 charts. The Macmillan Company, 60 Fifth Ave., New York 11, 1951.

Dublin, during his 40 years as the statistician of the Metropolitan Life Insurance Company, has had an opportunity to study a wealth of factual data dealing with various aspects of life. In addition to using the data generally available to all statisticians, he has developed and used many valuable statistics from the records of the industrial policyholders of his company. This book is a summary of this wide range of data, and it highlights those statistics that are of interest to the general public. He has included chapters on the increase, distribution, and changes in the age and racial composition of the American population; factors influencing the rates of reproduction and marriage; data on the composition and financial status of the average American family; and marital dissolution by divorce, separation, and death. Separate chapters are devoted to statistics on tuberculosis, cancer, diabetes, pneumonia and influenza, circulatory diseases, and rheumatic diseases; he compares the past and present prevalence, cures and control, and mortality rates of these diseases. The hazards peculiar to infancy and childhood and the many problems arising because of the increase in the number of old persons in our society are discussed. The various elements of the accident toll, the hazards of some occupations, and human impairments are also discussed. Other chapters deal with homicide and suicide, mental health, longevity, body structure, public health agencies and their operations, and the effects of war on the entire population.

The emphasis upon public health rather than the practice of medicine will not detract from the usefulness of the volume for physicians. The reader should be warned, however, on one small point; not until page 405 does one get the distinction between average length of life and expectation of life at birth. Physicians and other readers frequently confuse these two terms. The distinction becomes clear in the following quotation: "For example, men born in 1890 will have an average length of life of about 4.2 years longer than the expectation of life at the time of their birth." It is unfortunate that the author did not distinguish between these two terms when they were first discussed on pages 386, 387, and 395. One might also wonder why life expectancy at birth in the United States (49.2 years) for 1900 to 1902 is used in tables and charts for long term comparisons in the chapter entitled "How Long We Live" now that Greville has given us a figure of 47.3 years for life expectancy at birth in 1900.

The book is written in question and answer form to facilitate easy reference to specific inquiries. Each chapter has been supplemented with selected references for the benefit of those who desire information beyond the main points covered in the text. This volume is an extremely useful reference work for all persons interested in vital statistics.

**Frontiers in Medicine: The March of Medicine, 1950.** New York Academy of Medicine Lectures to the Laity, no. 15. Cloth. $2.50. Pp. 150, Columbia University Press, 2960 Broadway, New York 27, 1951.

This volume consists of six articles dealing with recent developments in various phases of medicine, including sociologic psychiatry, control of acute and chronic diseases, medical genetics, a mechanical heart-lung apparatus, antibiotics, and concepts and methods of medical research. The authors, renowned authorities in their field, present material that is both interesting and provocative, and which is worthy of reading by physicians and all those interested in medical progress. The reader may review many important recent strides forward in medicine and catch a glimpse of the possibilities that lie ahead. This book deserves a place on the shelf with the others of this series.

**Diseases of the Ear, Nose, and Throat: A Textbook of Clinical and Laboratory Procedures.** By Georges Portmann, M.D., Professor of Otorhino-laryngology at University of Bordeaux, Bordeaux. Translated by Fernand Montreuil, M.D., and Jules G. Waltner, M.D. Cloth. $20. Pp. 728, with 677 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

The author of this book is familiar to a generation of American otolaryngologists who participated in European postgraduate work in the interval between the two world wars. The book itself is a summary of his teaching at Bordeaux and Paris and is directed to the full-fledged specialist as well as to the resident physician in training. The author commences with an anatomic, physiological and pathological discussion of the various organs concerned in this specialty. He then describes his method of taking a history and follows this with a comprehensive description of his methods of clinical examination. He maintains that adherence to basic rules will reduce diagnostic errors to a minimum.

The book contains considerable material not evident in orthodox American textbooks on otolaryngological practice. American specialists will find much data useful but will find other information inapplicable to the American medical scene; for example, the author asserts that catheterization of the maxillary sinus is being replaced increasingly by antra puncture; actually, the reverse is true in the United States. Nevertheless, this book contains excellent source material for American otolaryngologists. Its usefulness as an introductory textbook for the novitiate who has not completed his residency is doubtful. This work can be read with profit by those who teach undergraduate and postgraduate students; many of the author's ideas can be modified and utilized for teaching purposes.

**A Textbook of Pharmacology and Therapeutics.** By Harold N. Wright, M.S., Ph.D., Professor of Pharmacology, University of Minnesota, Minneapolis, and Mildred Montag, Ed.D., R.N., Assistant Professor of Nursing Education, Teachers College, Columbia University, New York. Fifth edition. Cloth. $4.50. Pp. 620, with 77 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1951.

This textbook has been written primarily for students of nursing. The more important advances in the field of pharmacology are adequately covered. The authors devote chapters to different types of preparations and the coloring and flavoring of medicines. Drugs are classified according to their actions on physiological systems. The authors are to be commended for their review of the physiology of each system before introducing the reader to its pharmacology. A well-presented chapter on oxygen therapy and therapy with other gases, and one on toxicology are included. The bioassay of drugs and an explanation of U. S. P. units and other biological standardization units have been omitted.

**Psychology in the Service of the School.** By M. F. Cleugh. Cloth. $3.75. Pp. 183. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1951.

The points made in this book, by an English author, have as much significance as do discussions by American authorities. An unusual feature is the fact that ordinary, everyday problems are considered. Because it is often from these minor deviations that serious maladjustments develop, teachers and others in charge of children should appreciate and understand the best methods of applying corrective measures at the start. In an extensive introduction, the author writes a scholarly and readable review of the present status of psychology in education. In addition to chapters on the meaning of maladjustment, the handling of aggressive and regressive reactions, and a special discussion of numerous examples, there is a chapter on a practical guide for action, in which desirable procedures are itemized and discussed. Physicians with school affiliations will find this book of interest and assistance.

# QUERIES AND MINOR NOTES

## TREATMENT OF NARCOTIC ADDICTION IN A CARDIAC PATIENT

To the Editor:—*An addict who requires 8 grains (.51 gm.) of morphine sulfate daily has rheumatic heart disease with severe aortic insufficiency and combined mitral stenosis and insufficiency. He suffers from angina pectoris. Any attempt to curtail his morphine intake precipitates attacks of pain and dyspnea. He has tried the narcotic cure at the United States Public Health Service Hospital and at private hospitals, but has failed because of his poor cardiac status. His addiction is of two years' duration. Is a physician justified in continuing to provide such amounts of morphine in this case?*

*Philip Leavitt, M.D., Brooklyn.*

Answer.—Persons with valvular heart disease almost never require large amounts of morphine for extended periods of time. Actually, use of such large amounts of morphine in persons with advanced heart disease is harmful. Morphine causes constipation with consequent straining at stool, which may actually precipitate sudden death. Physical dependence is developed, and, if for any reason they are unable to obtain their supply of morphine, the stress of abrupt withdrawal may cause death. Tolerance develops to the analgesic action, and, if the patient has pain due to somatic disease, it cannot be relieved with opiates because of the tolerance. In the majority of cases of cardiac disease complicated by narcotic addiction, withdrawal of the drug is possible and safe, provided withdrawal is carried out quite slowly. The patient is usually benefited, physically, by withdrawal of narcotics. It, therefore seems probable that a physician would not be justified in continuing to prescribe large amounts of morphine for the patient described in the query. The proper procedure would be to insist that the patient again go to a properly equipped and staffed institution for treatment of his addiction.

## FORMATION OF URINARY CALCULI

To the Editor:—*Is there any relationship between formation of urinary calculi and work in the production of animals' feed and mineral supplements?*

*James H. Langstaff Jr., M.D., Fairbury, Ill.*

Answer.—Occupational hazards are not listed among the etiological factors of urinary lithiasis. It is generally agreed that a supersaturation of the blood with certain chemicals may influence the formation of urinary calculi; however, the literature contains no records of such saturation from occupational contact. To corroborate this, an investigation was made of the records of a manufacturer of various types of animals' feed. No evidence was found of an unusual incidence of urinary calculi among employees who came in direct contact with limestone, rock phosphate, and shell flour, as well as with small amounts of magnesium, cobalt, copper carbonate, and manganese dioxide. It would be safe to assume, therefore, that the answer to your inquiry would be negative.

## BOOSTER INJECTION OF TRIPLE ANTIGENS

To the Editor:—*Is it necessary to give a Schick test for diphtheria before giving a booster injection of the triple vaccine (diphtheria, pertussis, and tetanus)?*

*Robert S. Srigley, M.D., Hollis, Okla.*

Answer.—A Schick test is not necessary prior to giving a booster dose of the triple antigens.

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

## VAGINAL BLEEDING IN NEWBORN INFANTS

To the Editor:—*I have seen slight vaginal bleeding and gross hematuria frequently in newborn infants in this area. They improve spontaneously in a few days to a week. Do you know what could be causing this? All of the mothers have received vitamin K before delivery. Is it possible that this is caused by the use of hard "gypsum water?"*

*Robert C. Tavlin, M.D., Okeene, Okla.*

Answer.—There is no simple explanation for the combination of vaginal bleeding and gross hematuria in the newborn, unless these babies had some hemorrhagic diathesis. If this were so, there would probably have been bleeding from other organs, and vitamin K should have helped overcome the condition. Incidentally, it has not been proved that the administration of vitamin K routinely before delivery is of any value.

It is impossible to say whether the use of gypsum water is a factor in the bleeding—probably it is not. It is assumed, of course, that the diagnosis of hematuria was verified, to be certain that the bleeding came from the bladder and not from the vagina. No mention is made of whether male babies also had gross hematuria. If they did not, perhaps all the bleeding encountered came from the vagina. Slight bleeding from the vagina in the newborn is the result of hormone stimulation from the mother.

## ANTICOAGULANTS

To the Editor:—*1. Has trisodium citrate been used much in this country as an anticoagulant for thrombosis? 2. Can 0.6% sodium bicarbonate be used in place of sodium citrate as an anticoagulant for indirect blood transfusions?*

*M.D., New York.*

Answer.—Trisodium citrate has been recommended in many American textbooks for the treatment of thrombosis, particularly thromboangiitis obliterans. The dose usually suggested is 250 cc. of 2% sodium citrate, given intravenously daily over extended periods. Citrate acts by combining with calcium ions. The present consensus is that the compound is not an effective anticoagulant in the living body, because depression of the ionized calcium level of the blood to the point at which the clotting mechanism is affected would produce tetany. Citrate is nontoxic in fairly large amounts and is metabolized rapidly to form glucose.

2. Certain authorities used sodium bicarbonate as an anticoagulant after an empirical trial of a number of compounds. Coagulation was fairly effectively controlled at the recommended concentration of 0.6%, but a number of the bloods tested showed hemolysis in 60 hours. It is inferior to sodium citrate, which, in combination with citric acid and dextrose (ACD solution), permits storage of blood without appreciable hemolysis up to 21 days.

## BREAST CANCER AND ESTROGENS

To the Editor:—*A patient had a radical mastectomy for carcinoma five years ago. At present there is no evidence of any secondary cancer. I wish to treat her with estrogens because of severe symptoms resembling a diencephalic syndrome, but her surgeon warned her at the time of her operation that she must never take estrogens, because of her previous cancer. What evidence is there that such treatment is dangerous in this respect?*

*Norman Green, M.D., Toronto, Canada.*

Answer.—Estrogens are used with some success to combat osteogenic metastasis from breast carcinoma in the senile person over 65 years of age. Before that age, present day reports by Slaughter and Adair indicate that testosterone propionate should be used. The instructions against the use of estrogens in this instance were probably based on the thought that such medication stimulates breast activity, which in itself is not desirable in a patient who has had carcinoma.

V 14
1952

## EXPOSURE TO SILVER DUST

TO THE EDITOR:—*A few times a year, for periods of two or three days, some of our employees are exposed to the dust of metallic silver; they are covered with it from head to foot. Even though provided with coveralls, rubber gloves, and fresh air masks under positive pressure with plastic hoods, a certain amount of the dust is absorbed. On occasion, these workers are also exposed to solutions of silver nitrate, which temporarily stain their skin. I should like to know what techniques are available for determining the silver concentration in the blood or urine? Is there any test to estimate or predict the amount of silver that can be absorbed before permanent discoloration of the skin occurs? Are there any systemic effects that could be attributed to the absorption of metallic silver?*

*M.D., West Virginia.*

ANSWER.—The soluble salts of silver, such as silver nitrate, are toxic, and fatalities have occurred. These may not be attributable to silver, per se. No standards of concentration of exposure have been established above which argyria becomes prospective. Variations in susceptibility are pronounced. In some European industries employing silver, such as bead manufacture, localized surface deposits of silver are nearly universal. The scleras are often first involved. Apart from cosmetic damage, skin deposits are believed to be without importance. Only small amounts of silver are excreted through the urine, it is excreted instead through the intestinal tract. Precise urinary determinations require spectrographic procedures. (Kehoe, R. A.; Cholak, J., and Story, R. V.: Manganese, Lead, Tin, Aluminum, Copper, and Silver in Normal Biologic Material, *J. Nutrition* **20:** 85, 1940.) A crude chemical method, chiefly qualitative, but roughly quantitative, may be carried out in the following manner. A small cylinder of zinc, wrapped with a thread of platinum, is submerged in the urine. Silver, if present, deposits on the platinum. This becomes visible after exposure to nitric acid fumes. But, as the thread of platinum is rubbed on white paper moistened with ammonium hydroxide, a deposit of silver will appear. This becomes black if the paper is then moistened with a solution of hydrogen. This has no great diagnostic value. Apart from the well-established toxic properties of soluble silver salts and apart from possible dermatitis, the silver ion is regarded as harmless (except for argyria).

A few cases have been described in the literature mentioning gastrointestinal pathology (Heiman, H.: Toxicity of Metallic Silver, *Indust. Hyg. Bull.* **22:**81, 1943). Other metals constituting impurities of silver, such as lead, may account for all instances of alleged silver poisoning.

## RATTLESNAKES

TO THE EDITOR:—*A patient has just moved into a mountainous area near Los Angeles. There are many rattlesnakes, two having been killed on the acreage in the first week. The patient wishes to know: 1. Is there some poison or other way of driving them away? 2. If one of her children were bitten, what equipment should be kept on hand for such an emergency and what should be done?*

*Richard Thomas Barton, M.D., Beverly Hills, Calif.*

This inquiry was referred to two authorities, whose respective replies follow.—ED.

ANSWER.—There is no good way to drive rattlesnakes away. Their numbers can be kept down by removal of objects that serve as cover for them, such as rotting wood, flat stones, and brush piles. Local doctors should keep on hand equipment necessary for the treatment of snakebites. Then, if a person is bitten, a loose tourniquet should be applied just above the bite and the victim rushed to the doctor. A "loose" tourniquet is one that does not shut off the flow of blood in the deep blood vessels, i. e., does not stop the pulse but does shut off the flow of blood and lymph in the superficial vessels. It is best to teach children a good deal about the local snakes, so that they will not be needlessly terrified of the numerous harmless species but will at once recognize a rattlesnake. They should know that, in California, only the rattlesnake is venomous. Good nontechnical accounts of the snakes of southern California can be secured from the Zoological Society of San Diego, San Diego 12, Calif.

ANSWER.—1. The best way to discourage rattlesnakes around one's home is to eliminate wood piles and areas that harbor rats and mice, as they are attracted by these rodents. 2. Secure a first aid kit from any manufacturer that makes the suction kit. It is wise to open the kit, read the directions, and practice using suction on the hand or foot.

## INHERITANCE OF CYSTIC DISEASE OF THE PANCREAS

TO THE EDITOR:—*A woman whose first child died of cystic disease of the pancreas has since had another child who is apparently normal. She fears having another pregnancy because she has been told that any further children are likely to have the same disease. Is there any evidence to support this fear?*

*Joseph I. Echikson, M.D., Newark, N. J.*

ANSWER.—The literature on this subject clearly shows that the expression of fibrosis of the pancreas depends on the recessive type of heredity. In order to have the disease, a child must have the two appropriate recessive genes, one of which comes from each of the parents, who do not have the disease but who carry one gene each for it. In the present instance the loss of a child with cystic disease of the pancreas shows that both parents carry the gene. Consequently, there is one chance in four at each subsequent pregnancy that the child will have the disease. The parents themselves must decide whether they wish to risk losing another child. As yet, there seems to be no permanent cure for this disease.

## EXPOSING A FOREIGN BODY NEAR THE LESSER TROCHANTER

TO THE EDITOR:—*Please indicate the best route to approach a foreign body located at the lesser trochanter, and what muscular layers would be traversed in exposure.* *M.D., New York.*

ANSWER.—The easiest approach to a foreign body in the region of the lesser trochanter of the femur is an anterior approach, with a skin incision beginning just below the anterior-superior iliac spine and directed downward for a distance of 4 to 6 in. (10.16 to 15.24 cm.). The incision should be carried down between the tensor fasciae femoris and sartorius muscles. The rectus femoris could be reflected laterally, and this would give direct exposure to the lesser trochanter. It would probably be necessary to ligate and sever the lateral femoral circumflex vessels, which traverse this plane. The femoral nerve should be reflected laterally along with the rectus muscles. This exposure will bring into view the iliopsoas muscle, and this can be followed to its insertion on the lesser trochanter of the femur.

## FREIBERG'S DISEASE

TO THE EDITOR:—*I have a patient who has had Freiberg's disease for five years; the symptoms are broadening of the head of the second metatarsal and outer articular calcium deposits. Kindly advise as to treatment.*

*A. A. Skemp, M.D., La Crosse, Wis.*

ANSWER.—In most cases, conservative treatment has made operative procedure unnecessary. However, in advanced cases, with marked alteration of the head of the metatarsal bone and loose bodies in the joint, correction by operation has been suggested. The loose bodies are removed through a small dorsal incision, and the rough irregular head is made smooth by means of a small, curved chisel. Removal of the head of the metatarsal bone is not advised, since this increases the strain on the heads of the others.

## PENICILLIN AND EPINEPHRINE

TO THE EDITOR:—*Would it be permissible to give aqueous penicillin and epinephrine, 1:1,000, mixed in the same hypodermic syringe?*

*Edward S. King, M.D., Shelby, N. C.*

ANSWER.—There are no objections to giving aqueous penicillin and epinephrine, 1:1,000, mixed in the same hypodermic syringe when both agents are indicated in treatment.

## UNNATURAL PHENOMENA

To the Editor:—*Can the weird ghost scenes and sudden religious conversions said to be experienced by some susceptible persons be ascribed to back flashes of the optic nerve upon the retina? Please explain this psychosomatic phenomenon.*

*Walter A. Landry, M.D., Chester, Pa.*

To the Editor:—*Is there any physiopathological change in the eye or the brain accompanying the following complaint? An 18-year-old male complains of seeing words before his eyes, as others complain of seeing "spots" before their eyes. The words are not usually associated with his thinking processes at the time. The images may occur any time during the day, although probably more frequently when he is tired. This condition has been present for two to three years. The words appear only in black. Lesions of the lenses, media, or fundi were not found. The patient has 1 diopter of hyperopia. He is a diabetic, controlled at present with 40 units NPH insulin daily.*

*M.D., Ohio.*

Answer.—Visual sensations are produced by the images, formed on the retina, of objects in the outside world. However, this is only the first step in seeing. After the impulses in the optic pathways reach the brain, they are integrated and synthesized with other sensations, and especially with visual memories, to produce visual perceptions. It is well known that light falling on the retina, technically called the adequate stimulus, is not the sole means by which the rods and cones can be stimulated. Mechanical pressure applied by the finger tip on the posterior part of the eye suffices to stimulate mechanically the rods and cones; they can also be stimulated by an electric current. The cerebral centers can be stimulated by a blow on the head, which makes one see "stars." The cerebral cortical cells, which store up memories, can bring images into consciousness. Think of the infinite store of visual memories so close to the surface of consciousness that they are available for instant comparison with and elucidation of present sensations! It is not surprising that there are sundry other ways in which memory pictures can reach the surface of consciousness. Obviously, the emotions will exert a marked influence, as will the many and varied features of dreams. Thus, the elements are present to account for the phenomenon of "seeing things," whether words, faces, scenes, or events. Although we are a long way from complete knowledge of the physical and chemical processes that take place, we are neither justified in introducing a hypothetical supernatural explanation nor justified in calling these sensations imaginary. The phenomena are very real and subject to the laws of cause and effect. Their seat is not peripheral but is in the higher centers. They are normally controlled by inhibition and suppression. They are psychological in nature and must be studied by a psychological approach.

Picture the infinite store of past experiences capable of being tapped and brought to consciousness, usually under control but not infrequently seeming to break away from the natural laws. It is only our restricted knowledge that creates a class of what we may be tempted to call unnatural phenomena.

## PREMATURE GRAY HAIR

To the Editor:—*A boy, aged 7, for a year and a half has had a marked increase in gray and white hair in his scalp. He has both food and pollen allergies and as an infant had moderate eczema. He is being treated for allergies, on a Rowe elimination diet, and receives seasonal desensitization for his pollen allergies. This therapy controls his hay fever and asthma. I would appreciate any information as to further treatment and diagnostic studies.*

*Mervin J. Chaffin, M.D., Waterford, Calif.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—This boy may have leukotrichia, which is similar to vitiligo or leukoderma of the skin. Treatment is unsuccessful. There has been some suggestion in recent years that psychogenic factors might have etiologic significance. There has been an unsubstantiated report that the administration of paraaminobenzoic acid is sometimes of benefit, although there have been numerous reports of failure from such treatment.

Answer.—The graying of hair in pantothenic acid-deficient dogs, and less so in riboflavin, folic acid, and biotin-deficient dogs, as shown by Dr. Agnes Fay Morgan of the University of California, suggests that such deficiencies may cause graying in man. Proof of this, however, has never been presented. The Rowe elimination diets, as published, include ample amounts of these vitamins and call for supplemental B as well as other vitamins. Thus the diet, if prepared according to directions, would not be a likely cause. Those physicians, moreover, who have used these and other adequate trial diets for the study and control of food allergy for years have not encountered such graying of hair. Since this therapy effectively controls the hay fever and asthma, it should be continued. It is possible that inheritance may explain this premature gray and white hair.

## PLASTIC EARDRUM

To the Editor:—*Is the treatment for deafness with a plastic eardrum recognized as being an acceptable scientific method?*

*M.D., Georgia.*

Answer.—The artificial plastic eardrum has been used with some success in cases in which deafness was due to an absent or diseased middle ear, which mechanically prevented sound from reaching the cochlea. Earlier, the destroyed nonfunctioning sound conduction apparatus was replaced with a diaphragm rod prosthesis, which did not prove to be very practical, because the average ear canal was too narrow and tortuous to accept this insert. Subsequently, a less efficient, but more easily applied, middle ear prosthesis was developed in the form of an artificial eardrum. In selected cases, this device has proved to be of help in improving the hearing.

## PRINTING MATERIALS AND CONTACT DERMATITIS

To the Editor:—*A patient has contact dermatitis on the volar surface of the forearms. He handles hot lead in a printing shop. He is slightly sensitive to several foods; these have been eliminated. Are patch tests with lead advisable?*

*Howell E. Leming, M.D., Fayetteville, Ark.*

Answer.—Metallic type used by compositors in the printing industry is an alloy consisting of lead, antimony, and tin, any of which is capable of producing dermatitis in susceptible persons. However, dermatitis in printers is more likely to be due to inks or to the various alkalies and solvents used to clean the type and presses. The latter consist of such materials as turpentine, xylene, benzol, soda ash, and trisodium phosphate. Patch tests may be performed with the metallic substances or with the inks but not with the solvents.

## FLUORIDE BY MOUTH DURING PREGNANCY

To the Editor:—*Will fluoride given to the mother by mouth during pregnancy cause the baby to have better teeth in life?*

*Needham B. Bateman, M.D., Atlanta, Ga.*

Answer.—There is no evidence that fluoride taken by the mother during pregnancy will cause a baby to have better permanent teeth. Since the tooth buds of the permanent teeth are not even formed at the time of birth, it is difficult to see how fluoride can affect the baby's future teeth in utero.

## GYNECOMASTIA IN A YOUNG BOY

To the Editor:—*The answer on gynecomastia on page 909 in Queries and Minor Notes, in* The Journal, *Oct. 27, 1951, omitted one of the most frequent causes of this condition. Mitchell and Nelson (Textbook of Pediatrics, ed. 5, Philadelphia, W. B. Saunders Company, 1950, p. 1416), reported that "gynecomastia or unusual enlargement of mammary tissue is a frequent occurrence of adolescent boys. Spontaneous regression is usually observed when maturation takes place." In the patient described, watchful waiting combined with psychotherapy would seem to be the best treatment.*

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V 14
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